# COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

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Volume 21 NEW YORK, THURSDAY, MAY 4, 1922 Number 18


## *Policy Not Wrong But Inadequate*

OUR Washington correspondent this week points out that "the tactics of the [bituminous] operators are criticized on the ground that they seem to be engaged principally in denying everything that is said which reflects in any way on them. They seem to be striving strenuously to establish their entire blamelessness and to prove that there is absolutely nothing wrong with their own policies."

As a broad generalization this is true. It is true because the soft-coal producers have no organized national expression on labor questions. The officers of the National Coal Association appear before public bodies, make speeches, write articles, explaining away the charges of the miners and answering the questions of an impatient public.

What else can they do? By process of elimination, that is all that is left for them to do. The coal operators have no labor policy, no program for working out the present trouble. The non-union operators have a common policy of staying non-union, and the union operators work, think and act independently in each field, even by groups in each field. They do not allow, nor, of course, will the non-union operators permit, their common national association to formulate policy or express opinion as to labor matters.

Individually the operators speak up and speak plainly, but always as individuals. They do not all speak the same story or advance the same ideas and their scattered efforts lack the weight and force of organized expression. They have no common purpose on these matters.

How silly, then, is the propaganda of the United Mine Workers which says that the "trust-busting interests" of the country—the "predatory capitalists"—are guiding the bituminous industry through this strike with a resolve to destroy the union, to make slaves of the workers and to despoil the public.

## *Overcapacity—Should It Be Prevented?*

COMMENTING on the testimony of Mr. Morrow before the House Labor Committee in which it was stated that the existence of many more mines than are normally needed to supply the nation is "the chief safeguard of the consumer," the *New York Times* says that the cost of each ton of coal is thereby "proportionately enhanced, and to suppose that the difference is not passed on to the consumer is, if you will, sheer nonsense." The *Times* says that the statement would be true enough if the only factor in the price were the number of mines in operation, but labor, it adds, also is a necessary—indeed, the main—factor. With one-third more mines than the country needs and sufficient miners on hand to operate these mines there are "long stretches of unemployment," and wages have been increased "so that 200 days of work will support the miner throughout the year."

What the *Times* has overlooked, apparently, is that we cannot have a highly competitive industry such as bituminous coal without large overcapacity. Just as a majority of the miners are unemployed for a considerable portion of each year, so a considerable portion of the capital invested in the mines is unemployed, and unemployed labor and unemployed capital represent loss if not, indeed, waste. Were the industry so organized that only those mines and that mine labor were engaged in the production of coal that was necessary to meet the current and even the peak demand, it were necessary that there be some controlling organization so placed or so powerful as to prevent initiation of new enterprises. Such a condition can be brought about two ways in the bituminous industry: by private monopoly or government control.

Either means higher prices to the consumer. Government control, regulation or operation is notoriously wasteful. Were the government to take charge of the coal mines, the consumer would pay more either through high prices or increased taxes. Were the bituminous coal industry a private monopoly the consumer would pay more for its coal because a monopoly always exacts a profit and the bituminous coal industry as a whole has never paid a reasonable profit over any ten-year period since its inception.

## *That Thirst for Facts*

FACT finding for coal has become the war cry of the miners' union and a host of others. If the coal operators will but join the chase we will have the full pack in hot pursuit.

The coal operators are just as interested in the facts as any others, of course, and the reason they have not whipped themselves to a fury in the pursuit is that they at least have some perception of what a complicated business is that of mining and marketing coal. They have not, in the aggregate, more facts than the public and the miners but they know better what the facts mean. The producer of coal perceives the instant it becomes a fact that the price of coal is going down and he knows that he must meet the market—that is, if he is a producer of bituminous coal. If, under such conditions as obtained in 1921, he has non-union labor he takes advantage of the flexibility of his wage scales and cuts his wages and costs to meet the competition of others; if he has union labor he loses business and frets under the inelasticity of the union wage scale.

As a general rule the coal operator has no more facts about what the rest of the industry is doing than has the miner and the public but he has learned to interpret those facts. That is his business. That many producers are poor readers of facts does not impair this generalization. What the coal operator has not

generally recognized is the reason for the eternal cry of those outside the industry for information. He has been and still is loath to concede that his business is anything but his business. He is quite frank about this and he wants to know why the government, for instance, should pry any more into his affairs than into those of other business. He is above all honest in his assertion that he wants to run his industry, and not turn it over to either the United Mine Workers or to the bureaus of the government at Washington. Furthermore he is honest in his conviction that if it comes to either, he will let Uncle Sam have it rather than the union.

There is ample reason to believe that were every fact, figure and decimal point for which there is such a cry, now available with respect to coal, the real issues before the coal industry would be as difficult of settlement. Hundreds of millions of dollars and decades of time have been consumed in collecting every conceivable fact about the railroads. Laws have been passed and enforced—yes, even to compelling Henry Ford to divulge the fact that his road was losing money—for the collection of mechanical, financial and operating facts about transportation.

With all these data—more than any human can compass—organized, tabulated and assimilated, there is no unanimity of either expert or of public opinion with respect to the railroad situation. A committee of Congress has been hearing testimony based on these facts for months, the Interstate Commerce Commission is wrestling with a million or more words of record and the Railroad Labor Board is at it perennially. And yet we are as much in the dark as ever as to whether it costs the consumer 4¾c. or $2 to transport the goods for a suit of clothes from Chicago to Omaha. We perceive the difficulty of the commission in deciding whether the facts justify a lowering of freight rates, and of the Labor Board in finding whether wages can be reduced. Facts they have and power to get more. It is not so much fact finding that takes the time and is the concern of these sundry agencies dealing with the railroads; it is policy finding.

There is available a considerable array of facts about coal; doubtless more than about any other large industry save the railroads. For the practical purposes of the present argument about coal there are abundant figures respecting production, distribution, stocks, prices, profits, wages and earning of mine labor, though one may well desire more refinement here, more completeness there, and more frequent data on other points. There is hardly an aspect of the question, however, that is not covered in part. What, then, is the foundation—the motive—of the cry for "Compulsory Information in Coal"? Despite the list of subjects with respect to which Mr. Brophy calls for "facts" in his recent pamphlet, there is really but one point on which he desires to have more light, and that is profits of the operator. His suspicion that the coal producer reaps tremendous profits was voiced in his tirade against Dr. Garfield on Thanksgiving eve of 1919 in Washington. The same spirit was manifest by the miners in the hearings before the Thompson anthracite commission in 1920.

The pity of it all is that were there made available every single solitary "fact" that is called for, Mr. Brophy and those who think as he does would not be convinced of anything. For most people opinion is weightier than facts and facts are facts when you want them to be so.

## *Clean-Up Week*

IT IS to be hoped that clean-up week has not almost passed without its due observance in our mining towns. After all, cleaning up is no less necessary when the mines are idle than when they are working. In fact, as fire risks are greater when a property is idle, the duty to clean up is more imperative than ever. The out-of-door works of the mine should be put thoroughly in order so as to make fire less likely.

Any brush piles left in construction work should be cleaned up discretely fired. Props should be properly stacked and collections of bark removed. Last year's dried grass and dead weeds, which would burn furiously if ignited by a match or by fires in the woods, should be cleared away. Brush should be cut near buildings and prop piles and the grcund carefully scraped free of burnable material.

During the strike, temporarily constructed buildings can be finished and painted, or torn down and replaced. Tipples and sheds need roofing and repainting. The work should not be delayed, for during the rush of resumption, scaffolds and ladders will be in the way. Unfortunately, timber decays and roofs become leaky even though the works be idle.

Certain coats of paint and roofs of buildings at your works have arrived at the age when they cease to give adequate protection and they should be renewed entirely without regard to the running of the mines or the income derived from the investment. If the buildings are to be used hereafter they must be painted regularly despite the biennial disagreements between capital and labor, regarding which they know nothing. This is true of houses as well as of mine buildings. Unfortunately, there is no set day for painting. It is a form of insurance that does not run out suddenly after a given term of years. Today we have fire and life insurance, and if our insurance expires tomorrow the next day we will be uninsured. Paint insurance runs out more slowly though with equal certainty. To carry the simile further, the terms on which the losses are settled for decay due to the failure of paint gradually decreases as the insurance runs out by the drying out and the chemical changes of the oils in the paint. Consequently as this form of insurance does not have a definite day of expiring we like to let it run for every excuse or none till finally the paint is utterly unable to protect the houses and the appearance of the village is discreditable to its owners.

The frost has now left the ground. An excellent opportunity is given for sewering that will free the village of stagnant water with its wealth of troublesome and unhealthful insect life. Ditching should be done even where the standing water is not in the village but in neighboring woods. Steady and energetic work cannot be obtained from men who are living with their families in surroundings that are not healthful. In too many mining camps flies are abundant, and typhoid in consequence frequently makes its appearance. A removal of the food for these flies will remedy the evil, and all accumulations of fly food, whether of human or animal origin, should be placed where they can be transmuted by the alchemy of air and sunlight into such forms as can furnish flies no sustenance. The time to fight insect pests is early in the season before any number of them are bred. Precautions taken in May will bring a much larger reward than when left till July, for by that time the families will have multiplied.

# Methods of Mining That Enable the Pocahontas Region To Recover About 90 Per Cent of Coal*

## Recovery Records at 94 Per Cent of Pocahontas Mines—Thinner Coal Gives More Complete Extraction—Coal Covered by High Hills—First Mining Exhausts from 40 to 55 Per Cent of Seam

By Thomas H. Clagett†
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THE Pocahontas coal field comprises the area in Tazewell County, Virginia, and Mercer and McDowell counties, West Virginia, in which the Nos. 3 and 4 Pocahontas seams of bituminous coal are mined. It is a mountainous region with ridges that rise to heights of from 300 to 1,000 ft. above narrow valleys and, except for the areas occupied by a few poorly kept farms along the tops of the ridges or occupied by the mining and coking plants and villages, is wooded throughout. Coal was first shipped from this field in the year 1883, the mine producing it being located at Pocahontas, Va. There are now some 100 mines, of which about 95 per cent are drift mines. To the end of the year 1920 about 298,000,000 gross tons of coal had been produced and some 35,000 acres of coal had been mined out.

No. 3 seam is from 4 to 10 ft. thick, but in any particular locality the change in thickness is gradual, therefore the coal seam is fairly uniform. It has one streak of bone coal about 2 in. thick to which the coal adheres above and below. In parts of the field this bone is replaced by hard slate, usually from 2 to 4 in. thick. The seam has a slate or fireclay bottom and a drawslate top.

No. 4 seam is from 65 to 80 ft. above No. 3 seam, and is of minable thickness only in the western part of the field. Its thickness varies from 3 to 8 ft. and it has two streaks of bone coal, each from 1 to 2 in. thick. It has a fireclay or slate bottom and is overlaid by from 4 to 24 in. of a laminated coal and slate, locally termed "black rash," which is separated from the coal seam by about 3 in. of slate. This "black rash" averages about 25 per cent ash, but contains some clean coal.

The coal in both seams is quite soft. The cleavage rarely is sufficiently well defined to exert an influence on the mining. The overlying strata are slates, shales and standstones, the sandstones predominating, extending to heights of from 30 to 1,000 ft. above No. 3 seam. The strata directly over the drawslate of No. 3 seam, or the "black rash" of No. 4 seam, and up to the first sandstone usually are slates or shales. These are about 10 ft. in thickness over the thicker coal and decrease in thickness as the coal becomes thinner, sometimes disappearing altogether.

The seams usually dip enough to provide natural drainage, although there are many undulations, swags and basins where the water must be pumped or liberated by ditching. Explosive gas rarely is found except in the slope and shaft workings. The lands as a rule, including the surface, are owned by land-holding companies

*Article entitled "Systems of Mining in the Pocahontas Coal Field and Recoveries from Them," presented to the American Institute of Mining and Metallurgical Engineers, Feb. 22, 1922.
†Chief engineer, Pocahontas Coal & Coke Co.

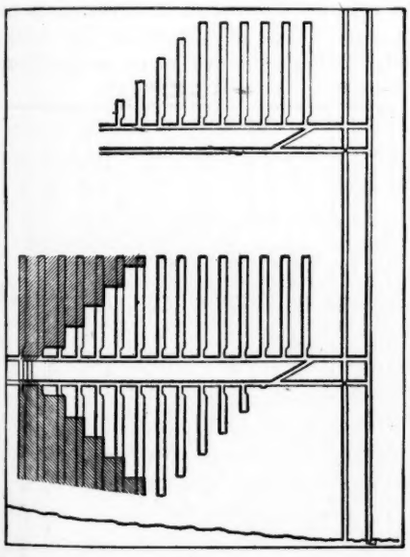


FIG. 1. FIRST LEASES PRESCRIBED THIS METHOD OF MINING

Rooms are opened on one entry advancing and on the other entry only after it has been driven the length desired. Those on the latter entry are opened on the retreat. All pillar drawing in both entries is done retreating also. Note the V break-line with its overloaded point located over the entry and also the temporary barrier pillar between pairs of entries.

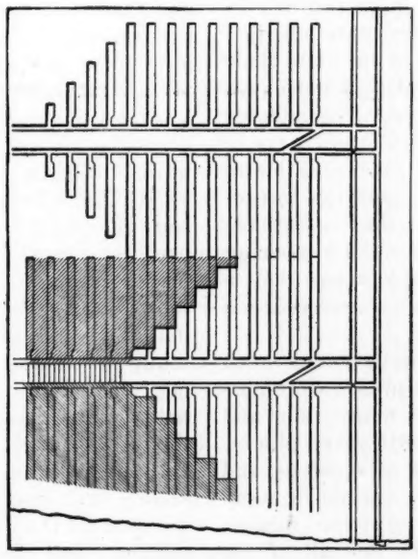


FIG. 2. ANXIETY TO GET OUTPUT EARLY FAVORED THIS CHANGE

All the rooms were driven on the advance and were allowed to stand until the entries were driven up, when pillaring commenced on the retreat, giving a V-shaped pillar line. The support given by the temporary barrier pillar between pairs of entries in the manner of working shown in Fig. 1 is in this plan no longer afforded and all the rooms are weakened by long standing.

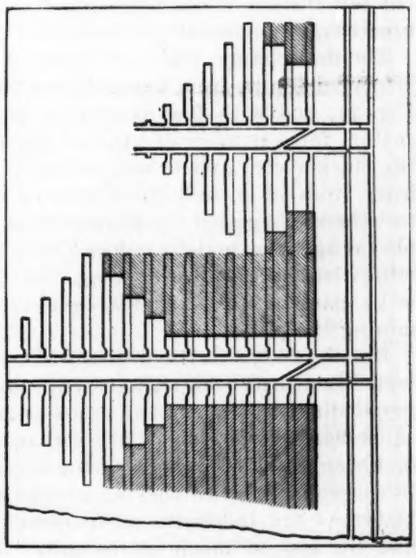


FIG. 3. BACK TO PRIMITIVE ADVANCING METHODS

Long lines of long-standing rooms stretching their length from one pair of entries to another as in Fig. 2 did not give satisfaction. It was thought better to draw the pillars as soon as they were finished and thus gain a surer release of pressure, for when coal is extracted simultaneously from the rooms between adjacent pairs of entries better falls are obtained.

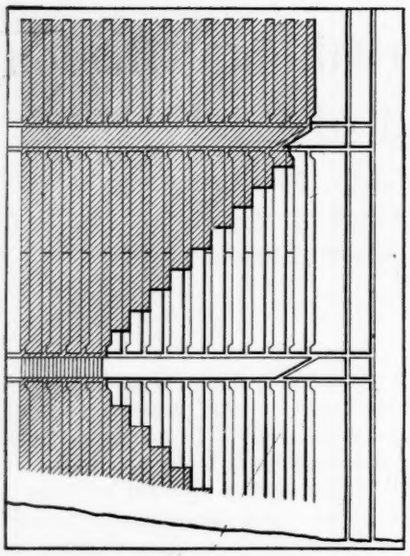


FIG. 4. PLANNING FOR LONGER BREAK-LINES IN PILLARING

The plan in Fig. 3 proved unsatisfactory, for the pillaring break-lines were not continuous and the entries were badly protected. Only in light cover was the right break obtained. So an effort was made to retreat from an inner heading first and to work out, thus giving a larger area of unsupported roof and a more certain cave.

and leased to operating companies on a royalty basis. The room-and-pillar system of mining has been universally adopted from the beginning as being best suited to all the conditions. The principal changes in the manner of its adaptation as mining progressed are shown by the following very general sketches of typical arrangements. Fig. 1 exhibits the system of mining that was made obligatory in the earlier leases and proposed to be followed, subject to such changes as would be agreed upon. It provided that entries and breakthroughs should be 10 ft. wide, entry pillars 60 ft. wide, rooms 18 ft. wide, and room pillars 42 ft. wide; that rooms from one entry of a pair should be turned and driven out progressively on the advance; that rooms from the other entry should be turned and driven progressively on the retreat, and that pillar mining should be deferred until the entries had been driven the intended distance and then should begin in the last pillars and be conducted on the retreat in both sets of pillars, the chain pillar of the entry being mined at the same time. In but few instances was this carried out in its entirety in practice, due apparently to desire for immediate tonnage.

The first change was to turn and drive rooms to their projected limits from both entries on the advance (see Fig. 2), and with few exceptions this was the adopted custom for a number of years. The first mines were in the thicker coal and it was considered good practice to leave from 18 in. to 3 ft. of top coal in openings to protect the roof against the disintegrating effects of atmospheric agencies and to reduce the amount of timbering otherwise necessary, it being the expectation that a large part of this top coal would be recovered when mining the pillars.

But the rooms in the first workings were driven much wider than had been anticipated, room pillars were correspondingly thinner, and there were many falls and squeezes. Few barriers, other than main-entry pillars, had been provided to prevent the spread of squeezes, and in consequence when they occurred they caused in many instances the indefinite postponement of pillar mining and the loss of much of the pillar coal and all of the top coal. Marked improvement was soon noticeable in spacing and widths of rooms, but the practice of leaving top coal continued wherever the seam was thick enough to permit it, and only a small proportion of coal so left has been recovered except over the roadways.

When pillars were mined the V-shaped breakline caused additional weight upon the chain piller at the apex of the "V," which was aggravated by a tendency to lag behind in mining the chain pillar, and frequently resulted in crushing portions of the chain pillar and the end of room pillars. Usually but a small recovery was made of the entry stumps and chain pillar and in many instances they were not mined.

An attempt was made to overcome the losses and inconvenience resulting from the delay in pillar mining by mining pillars on the advance (see Fig. 3), but, except where the rooms were unusually long and the cover light, an area was opened of insufficient size to cause the overlying sandstones to break, and a squeeze usually followed, causing loss of the entry stumps and chain pillar and spreading to the adjacent area when it was opened up.

Longer and more uniform breaklines were obtained by postponing pillar mining until it could continue in one direction over a larger area, as indicated by Fig. 4, or, when the grades were favorable, by Fig. 5. Frequent changes in the direction of the breakline were thus avoided, and the extent and shape of the area mined out were soon such as to cause a good break of the sandstone, but the orderly advance of pillar mining often was interrupted by falls, poor drainage or squeezes in the long-standing pillars, with consequent loss.

Driving rooms from both entries of a pair not only caused large areas to be opened up far in advance of pillar mining, with probability of losses, as stated, but frequently required that one set of rooms be worked to the dip, or else at an acute angle with the entry, in an attempt to keep above the strike line (see Fig. 6). Progress of dip rooms usually was delayed by water and changes in the direction of the rooms caused irregular breaklines in pillar mining.

The working of rooms from both entries of a pair therefore was discontinued as a general practice in favor of working rooms from one entry only (see Figs. 7 and 8), and although many mines continued to turn and work all rooms on the advance, others took advantage of opportunities first to drive room entries to completion and then turn and work out the rooms progressively on the retreat. This was followed promptly by pillar mining as indicated. Other changes were made from time to time and a variety of combinations as regards width, length and spacing of rooms used, but experience in the mining so far conducted and a study of methods of other fields with similar mining conditions had shown that economical pillar mining and a maximum recovery of coal required that rooms be opened up only fast enough to provide for the un-

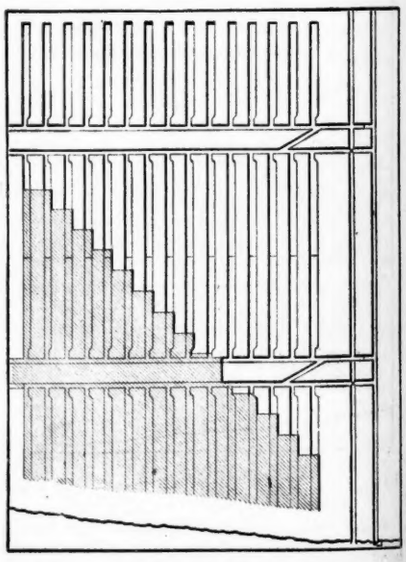


FIG. 5. WITH GRADES FAVORING, THIS PLAN PREVAILED

The method favored speedy output and gave a long break-line. The grades did not always favor its use, however.

interrupted advance of pillar mining, that pillars be mined promptly upon completion of rooms, that the line of pillar mining be carried forward uniformly in one direction until sufficient area was completely mined out to cause a good break of the overlying sandstones, that the direction of the breakline be varied as little as possible within reasonable limits, and that barrier and other pillars be of sufficient size not only to protect the workings properly but to admit of being satisfactorily mined when the time came to mine them. Most new development since the year 1900 has been laid out with these principles in mind.

Fig. 9, which already has been published several times,[1] was prepared by one of the land-holding companies in 1907 to show three prevailing adaptations of the panel system then in general use in many mines, but this plan, to conform to local conditions, tonnage requirements and individual preferences, usually was modified as to width, length and spacing of rooms and in various other ways.

### With Speed Smaller Pillars Are Permissible

Where pillar mining follows promptly, rooms from 14 to 24 ft. wide, depending on the character of the top, and spaced 60 ft., center to center, afford pillars of sufficient size to admit of successful pillar mining under any conditions of roof or cover yet encountered, and these are the widths and spacing commonly used, although there are numerous instances of greater spacing and some of greater widths. Where delays can be avoided, satisfactory results have been obtained with rooms as much as 36 ft. wide, spaced 90 ft., center to center, 800 ft. long, with two tracks in a room, but to obtain this result good roof, well and systematically timbered, and a high degree of supervision were needed. Under present systems from 40 to 55 per cent of the coal area actually opened up by the rooms and room entries is taken in the first mining.

The procedure indicated by panel No. 1 has been enlarged upon by continuing the entries indefinitely as shown in a very general way by Fig. 10, but illustrated in a comprehensive manner in a paper by W. H. Grady.[2]

Several land-holding companies and some operating companies, some annually and others every two years, determine the quantity of coal recovered from each mine per acre-foot of coal area exhausted, as taken from the mine maps, and calculate the percentage of recovery by comparing the tonnage mined with the theoretical tonnage contained in the same area, and also calculate the average recovery from the beginning of operations to the end of the corresponding period. Theoretical tonnage is estimated on the basis of one gross ton per cubic yard of solid coal, or 1,613.3 gross tons per acre-foot, corresponding to a specific gravity of 1.328. The specific gravity of Pocahontas coal varies from 1.298 to 1.330. Information shown by Figs. 11 and 12 is taken from the records of such companies as prepared and carried forward from year to year since 1890.

Fig. 11 shows graphically the average thickness of coal, the average recovery, in gross tons per acre-foot and also in percentage and the proportion of pillar mining, in sixty-seven mines or groups of mines, representing 94 per cent of the total production of the Pocahontas field to the end of the year 1920, the arrangement of mines or groups of mines being about in the order in which shipments were begun. It shows also the combined average of the mines opened in each 10-year period, as well as the combined average of all the mines. A summary of these averages, showing

[1]H. H. Stoek, "Pocahontas Region Mining Methods," *Mines and Minerals*, Vol. 29, p. 395, 1909; Audley H. Stow, "Mining in the Pocahontas Field," *Coal Age*, Vol. 3, p. 594, 1913; W. H. Grady, "Some Details of Mining Methods with Special Reference to the Maximum of Recovery," W. Va. Coal Min. Inst., December, 1913; *Coal Age*, Vol. 5, p. 156, 1913; C. M. Young, "Percentage of Extraction of Bituminous Coal with Special Reference to Illinois Conditions," Univ. of Ill. Bull. No. 42, Vol. XIV, 1917.

[2]Cost Factors in Coal Production," *Transactions*, American Institute of Mining Engineers, Vol. LI, p. 138, 1915.

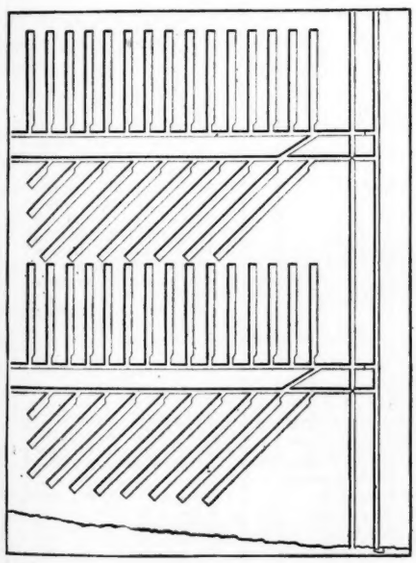


FIG. 6. DIFFICULTIES WHERE COAL WAS NOT LEVEL

Where the coal dipped the rooms were driven at less than a right angle from the roadway and in the direction of the strike-line. This practice resulted in irregular break-lines in pillar mining.

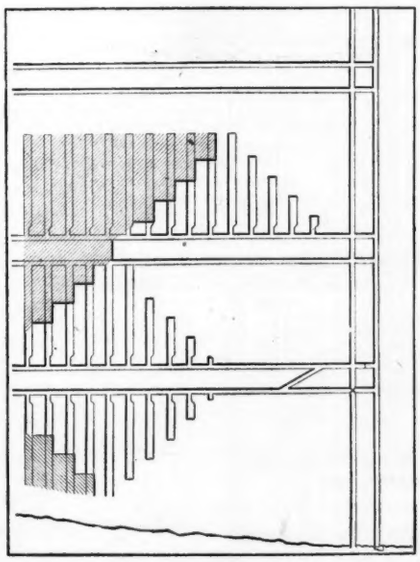


FIG. 7. ROOMS FROM ONLY ONE ENTRY COME INTO FAVOR

In this instance both room driving and pillaring are on the retreat, so that the pillars are drawn before the roof weakens. Only at crop, where roof breaks readily, are rooms driven from both entries.

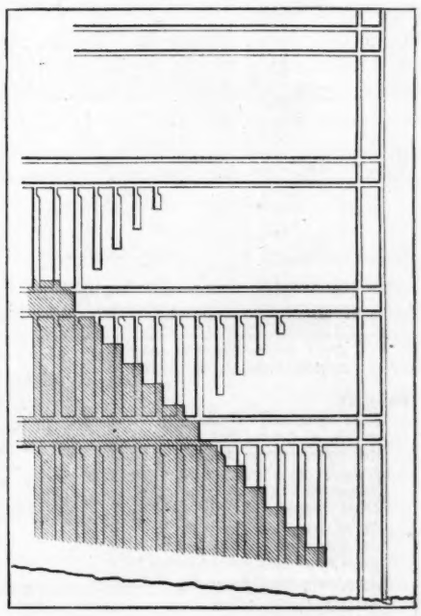


FIG. 8. ONE-WAY ROOM DRIVING WHERE MAIN ROADS DIP

The rooms are driven only as fast as it is proposed to pillar them, so that the rooms are in good condition when the pillaring commences and the solid coal extends almost up to the pillar line.

also the coal area exhausted by the mines opened in each period, is as follows:

| Mines Opened | Thickness of Coal in Feet | Gross Tons Recovered per Acre-foot | Percentage of Recovery | Proportion of Pillar Mining Per Cent | Coal Area Exhausted Acres |
|---|---|---|---|---|---|
| 1883 to 1890 | 7.18 | 1,290 | 80.0 | 55 | 10,790 |
| 1891 to 1900 | 5.56 | 1,411 | 87.5 | 49 | 10,431 |
| 1901 to 1910 | 5.30 | 1,513 | 94.4 | 36 | 10,261 |
| 1911 to 1920 | 6.24 | 1,469 | 91.1 | 18 | 725 |
| Grand av. | 6.04 | 1,394 | 86.4 | 46 | 32,207 |

The thickness of coal as shown—on which the recoveries are based—is the full thickness of clean coal in the seam, except that for a number of years the top coal left in first mining was not included in the sections measured in the mines shown by columns 1, 2, 3, 4, 7, 8, 9, 13 and 55. The thickness of coal as shown for these particular mines, therefore, is somewhat less than the actual thickness and indicated recovery is correspondingly higher than the actual recovery.

On the other hand, coke was manufactured at all mines shown by columns 1 to 41, both inclusive, and columns 48, 49, 50, 52 and 53. Coal used in making coke was estimated at the rate of 1.6 tons of coal per ton of coke shipped, but under the conditions of coke manufacture in the Pocahontas field, 1.8 would have been a better factor. While this loss is not directly chargeable to recovery in mining, it is nevertheless included in the recoveries shown.

It may be noted from the thicknesses that the first mines were opened in the thicker coal and that subsequent development as a rule extended to thinner coal. It also may be noted that recovery increases as thickness decreases, as indicated by the averages of mines opened in the first three periods, and that recovery decreases as thickness increases, as indicated by the averages of mines opened in the last period.

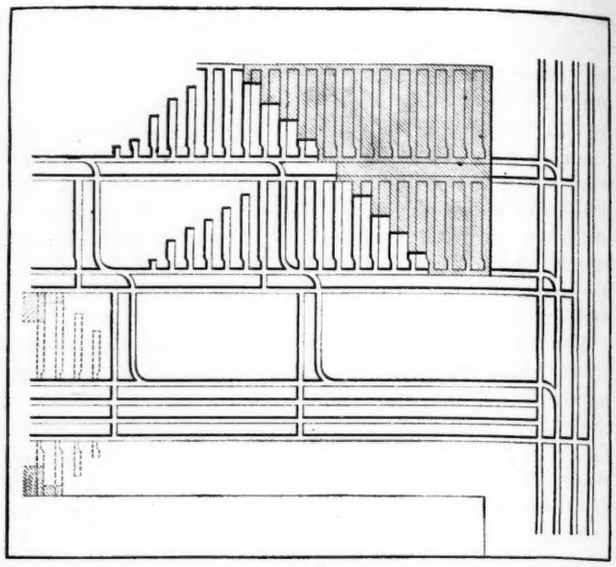


FIG. 10. REVISION OF PANEL 1 IN FIG. 9
By driving the cross roadways, as in this illustration, the headings can be indefinitely extended and a long break-line obtained.

This increase in recovery may be attributed in part to decrease in thickness of coal, in part to improvement in top conditions as the coal becomes thinner, permitting a greater proportion of the coal area to be taken with safety in first mining, as indicated by the decrease in proportion of pillar mining; in part to the fact that but few mines opened since the year 1900 have manufactured coke and in part to the changes in systems of mining illustrated.

Decrease in recovery as shown by the average of mines opened in the last period is on account of the

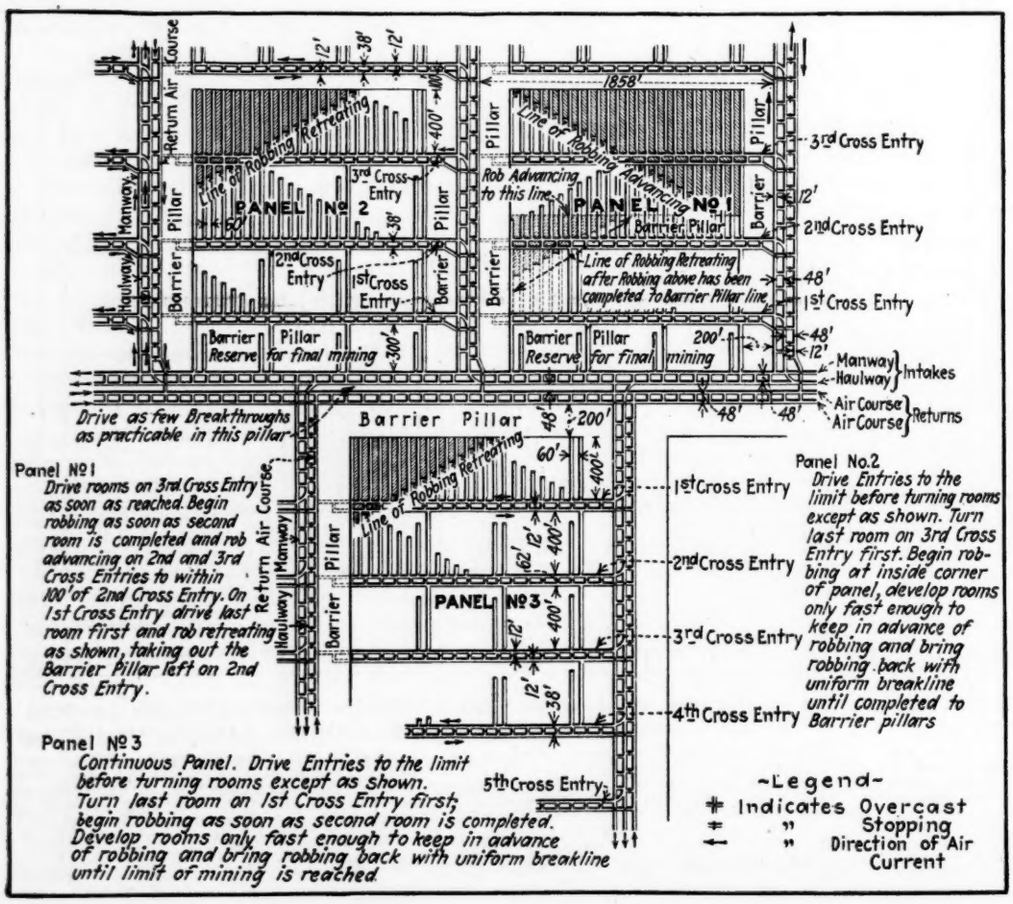

Return Air Course
Manway
Haulway
Barrier Pillar
PANEL No 2
PANEL No 1
PANEL No 3
3rd Cross Entry
2nd Cross Entry
1st Cross Entry
Barrier Reserve
Pillar for final mining
Line of Robbing Retreating
Rob Advancing to this line
Line of Robbing Advancing
Line of Robbing Retreating after Robbing above has been completed to Barrier Pillar line
Drive as few Breakthroughs as practicable in this pillar
Intakes
Returns
Air Course
Panel No 1
Drive rooms on 3rd Cross Entry as soon as reached. Begin robbing as soon as second room is completed and rob advancing on 2nd and 3rd Cross Entries to within 100' of 2nd Cross Entry. On 1st Cross Entry drive last room first and rob retreating as shown, taking out the Barrier Pillar left on 2nd Cross Entry.
Panel No 2
Drive Entries to the limit before turning rooms except as shown. Turn last room on 3rd Cross Entry first. Begin robbing at inside corner of panel, develop rooms only fast enough to keep in advance of robbing and bring robbing back with uniform breakline until completed to Barrier pillars
4th Cross Entry
5th Cross Entry
Panel No 3
Continuous Panel. Drive Entries to the limit before turning rooms except as shown. Turn last room on 1st Cross Entry first; begin robbing as soon as second room is completed. Develop rooms only fast enough to keep in advance of robbing and bring robbing back with uniform breakline until limit of mining is reached
-Legend-
# Indicates Overcast
= " Stopping
← " Direction of Air Current

FIG. 9

**Composite Plan**

Shows three methods of operating. Panel 1 shows a method that combines advancing and retreating, the advance being made in the more remote working and the retreat in the near workings. Panel 2 shows a method of retreating from the rear end of the further entry and Panel 3 a method of retreating from the rear end of the near entry. Panel 3 is extended indefinitely, and consequently when the panel is completed an immense area has been extracted and the roof is so completely lowered that a minimum of the roof over the extracted area rests on the roadways on either side of the panel. It is by these methods that the Pocahontas region is making its large percentage extractions.

predominating tonnage from the thick coal mine shown by column 62. The top coal has been left up in most of the entries of this mine and has been included in the thickness, but the greater part of this top coal may yet be recovered.

That recovery increases as thickness decreases is emphasized by comparing results shown in the first eight columns, there being little difference in conditions.

Column 9 represents the only mine completed and shows a recovery of 73.6 per cent. Much of the coal left up in first mining was lost on account of very bad top, and about 30 per cent of the coal produced was made into coke. Column 40 shows a mine with thickness of but 4.5 ft. and, in spite of excellent supervision and great care with the work, shows a low recovery on account of unusually bad top.

Columns 41, 52, 53 and 60 show thick coal and an excellent recovery. Some of the clean coal in the "black rash" top is loaded out in these mines, whereas only the clean coal of the seam is included in the thickness. Columns 42, 43 and 44 have about the same thickness and same proportion of pillar mining but with recoveries of 97 per cent, 91.2 per cent and 85 per cent, respectively, owing to different top conditions.

Columns 50, 55, 62 and 63 show the only mines opened since 1900 in which top coal has been left in first mining. The practice has been discontinued in these mines except as to entries and is being gradually discontinued in all mines.

Columns 56 and 57 do not show any pillar mining The workings are on No. 3 seam and laid out with wider pillars than usual in order that pillar mining may be deferred until it can follow the pillar mining of the No. 4 seam above.

Fig. 12 shows graphically the average thickness of coal, the average recovery in gross tons per acre-foot and also in percentage, and the average proportion of pillar mining by years from 1890 to 1920 and from the beginning of operations, in 1883, to the end of each year from 1890 to 1920 of all the mines on the property of one of the land-holding companies representing 70 per cent of the total production of the Pocahontas field to the end of 1920, and including mines opened in other fields since 1915. It shows also the total number of mines opened as at the end of each year and the area mined each year.

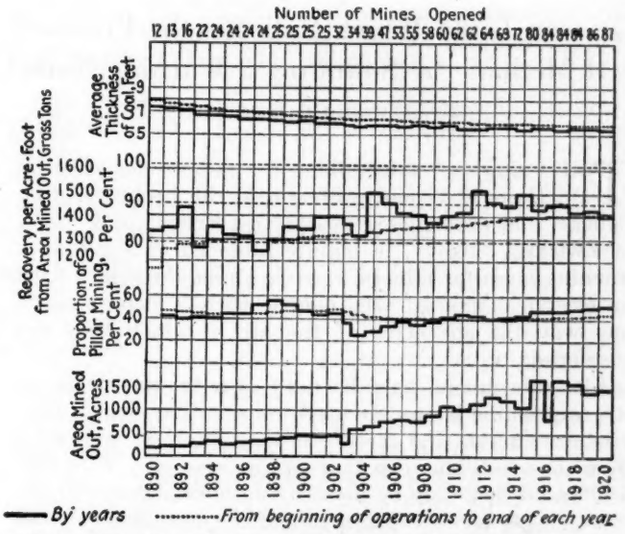

Number of Mines Opened
Average Thickness of Coal, Feet
Recovery per Acre-foot from Area Mined Out, Gross Tons
Per Cent
Proportion of Pillar Mining, Per Cent
Area Mined Out, Acres
By years
From beginning of operations to end of each year

FIG. 12. GRAPH GIVES AVERAGE COAL THICKNESS, PERCENTAGE RECOVERY, PROPORTION OF PILLAR MINING AND ACREAGE EXHAUSTED, BY YEARS

This graph shows how recovery per acre as figured from the beginning of operations till any given year increased steadily till within the last few years. Now, however, it has almost reached a maximum, and advances toward higher extraction are slower and less certain. The thinning of the coal mined has aided somewhat in making the percentage of extraction high.

The averages from the beginning of operations to the end of the years 1890, 1900, 1910 and 1920 are:

| Year | Thickness of Coal Feet | Gross Tons Recovered per Foot-acre | Percentage of Recovery | Proportion of Pillar Mining Per Cent | Coal Area Exhausted Acres |
|---|---|---|---|---|---|
| 1890..... | 7.89 | 1,161 | 72.0 | ... | 899.00 |
| 1900..... | 6.74 | 1,310 | 81.2 | 47 | 4,054.20 |
| 1910..... | 6.26 | 1,358 | 84.2 | 44 | 10,894.95 |
| 1920..... | 5.90 | 1,404 | 87.0 | 44 | 25,431.59 |

It may be noted that although the recovery by years has many ups and downs, due in part to economic and industrial conditions that obtained in the field from time to time and other causes, the average recovery from the beginning of operations to the end of each year shows a progressive increase. As to the effect of the character of bottom on recovery, there have been occasional instances of pronounced squeezes in which fireclay bottom would heave in openings, causing serious interruptions to haulage, delay in removing pillars and consequent losses. Otherwise the effect of character of bottoms on recovery has been negligible.

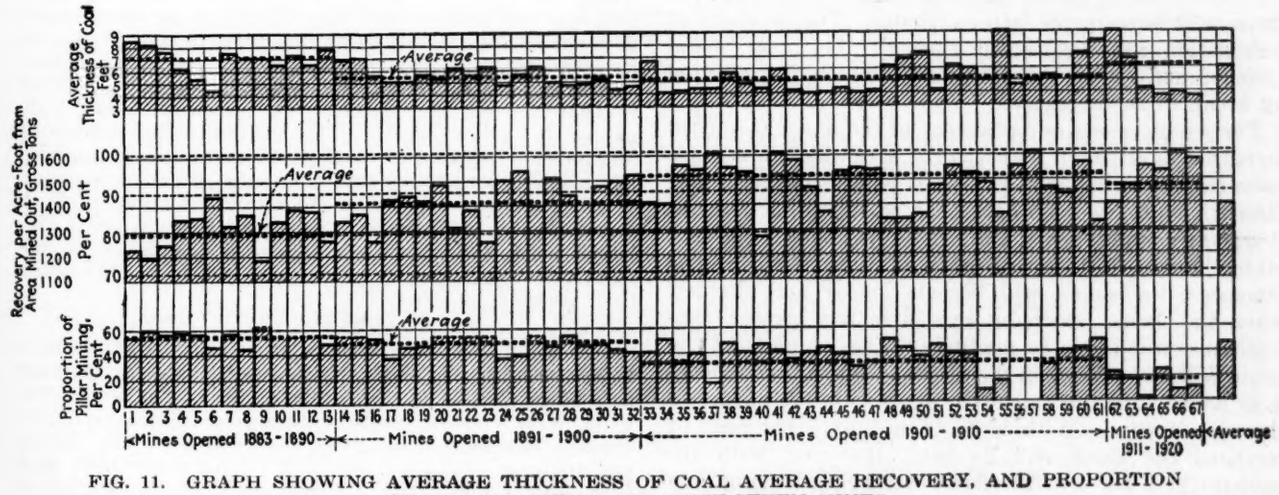



FIG. 11. GRAPH SHOWING AVERAGE THICKNESS OF COAL AVERAGE RECOVERY, AND PROPORTION OF PILLAR MINING FOR SIXTY-SEVEN MINES

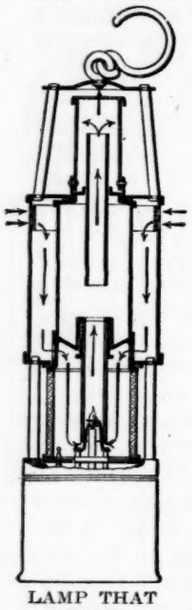
Note how, in the first six mines opened, the reduced thickness in all but one case, No. 2, resulted in increased recovery. Mines 55 and 62 have the thickest coal, and to the pillar losses in the latter mine the lowered percentage recovery in the last decade is ascribed.

## German Lamp Which Indicates the Presence Of Methane by Sounding a Warning Note

By Alfred Gradenwitz
Berlin-Friedenau, Germany

THE "singing" safety lamp for miners designed by Dr. Hans Fleissner, professor at the Leoben Mining College, and constructed by Messrs. Friemann & Wolf, of Zwickau, Saxony, is mainly intended to serve as a warning lamp for miners who are already provided with an electric lamp but who cannot with it determine in any way the character of the air in which they are enveloped.

Fleissner lamps may be used also to give warning where gasoline lamps are used, because the signals they give are audible and therefore more likely to be heeded than the small blue cap that can be seen only with difficulty and then only by men having normal color vision.



LAMP THAT SINGS

The tube above the lamp chimney tunefully vibrates when methane is in the air and thus the miner is warned of danger.

The action of the new lamp is based on the principle that a flame burning in the interior of a glass tube under certain conditions will give out a sound audible to the human ear. Though the principle on which the lamp operates is simple and well known, many difficulties had to be overcome in adapting it to actual practice.

The lamp as shown in the illustration is made of metal except for two glass cylinders, which are shown hatched in the cross-section. The flame burns in a narrow glass cylinder or chimney which, by means of a stuffing box, is fitted into a metal vessel. This is surrounded by the usual lamp glass. After entering the upper part of the outer metal cylinder through openings fitted with metal gauze, the air will take the course indicated by arrows between the outer and inner metal cylinders, thus penetrating through a ring likewise fitted with metal gauze into the intermediary space between the outer and inner glass cylinders and, reaching the flame, will burn in the latter cylinder. The products of combustion are discharged through the inner metal cylinder and through the chimney, which is protected by a cap of metal gauze.

The sensitiveness and efficiency of the flame have been increased by fitting it with a coil of wire which in a sense converts the ordinary wick into a bunsen burner. The dimensions of the lamp have been so chosen as to cause it first to sound when the air contains about 2 per cent of methane. As the percentage of the dangerous gas increases, the sound will become louder and shriller, when the flame, which by this time has become non-luminous, will begin to fluctuate. The loudness of the sound will increase when the methane percentage reaches 4, at which time the flame will jump from the burner to the coil of wire. With more than 5 or 6 per cent of methane the flame will go out. However, with the methane at 2 per cent the flame will begin to sing only if the air contains a fair percentage of oxygen. If the atmosphere of the mine has much carbon dioxide and small amounts of oxygen, the explosion limit and accordingly the action of the lamp in the presence of methane will be different.

Actual tests have shown that the lamp affords an absolutely reliable indication of the presence of firedamp and that it can be used safely and satisfactorily under working conditions. Provision also can be made by which it will indicate when oxygen is present in an insufficient percentage.

## Tests Range Coal, New Anthracite Size

RANGE coal, the new size which the Lehigh Coal & Navigation Co. has been preparing for the past two months, has been subjected to test by Joseph H. Lucking, a director of the National Coal Association and president of the New Jersey Coal Dealers' Association, says the *Coal Merchant* for April, 1922.

Mr. Lucking used a hand rotary screen in making his tests. The coal that passed through a ¼-in. screen he designated "rice, barley and dust"; that through ½-in. mesh as "buckwheat," and that through the ¾-in. mesh as "pea" coal. The test of the range coal showed that in a ton there is 15 lb. of rice, barley and dust; buckwheat, 135 lb.; pea, 600 lb., and nut, 1,250 lb.

In order to compare this with a ton of nut coal as delivered to the consumer, Mr. Lucking purchased a ton of this size from one of the public pockets in Newark, which he subjected to the same test. This ton of coal showed 20 lb. of rice, barley and dust, 10 lb. of buckwheat, 230 lb. of pea and 1,740 lb. of nut. Another ton from a different public pocket contained 21 lb. of rice, barley and dust, 40 lb. of buckwheat, 260 lb. of pea and 1,680 lb. of nut coal.

The coal of the Lehigh Coal & Navigation Co. was found to contain about one-fourth of the amount of nut in the range size usually found in nut coal, which makes a 50c. reduction in price about right, as Mr. Lucking's calculation showed a theoretical difference of 52c.

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THE BUREAU OF MINES has entered into a co-operative agreement with the city of Grafton, W. Va., to make a study of the smoke problem of that city. O. P. Hood, chief mechanical engineer of the Bureau, in announcing the Grafton study, points out that "the problem is just as real as, although on a smaller scale than, was found in larger cities. In fact it is much better to have a constructive program for smoke abatement in the early days of the development of an industrial city than it is to wait until its interests, industrial and residential, become too crystalized or well established to invoke drastic changes." Hood is chairman of a committee on standard smoke ordinances for cities appointed by the American Society of Mechanical Engineers. The other members of the committee are Osborne Monnette, of Chicago; Henry Kreisinger, of the American Society of Mechanical Engineers; P. J. Dougherty, of the American Society of Heating and Ventilating Engineers; Lloyd R. Stowe, of the Stoker Manufacturers Association, and E. L. Millard, of the American Civic Association.

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THE WORK OF COAL SAMPLING AND ANALYSIS by states is being continued by the U. S. Bureau of Mines. Large numbers of samples have recently been taken at mines in Virginia, West Virginia, western Pennsylvania, Alabama, Tennessee, Oklahoma, Utah, and fewer in Colorado, Illinois and Indiana. Data on the coals of Kentucky have been prepared for publication and will constitute the second report of the series of technical papers containing analyses of coals by states; the first, on Iowa coals, was issued some time ago.

# How the Life and Performance of the Lead Storage Battery May Be Extended by Proper Care*

## Terminals Should Be Greased Where Not Lead-Coated — Acid Spray Must Be Removed — Add Water About Once a Week as Needed — Keep Makeup Water in Lead, Glass, Earthenware or Rubber Vessels

By M. F. Packard
East Pittsburgh, Pa.

IN DETERMINING the performance and life of locomotive storage batteries no factor is more important than care. Unfortunately in mining installations neglect is the rule rather than the exception and many of the criticisms of the storage-battery locomotive and most of its failures may be charged to this cause. A few years ago battery troubles sometimes could be ascribed to fundamental defects in the battery structure, but most manufacturers have done much to rectify these errors in design. At the present time, therefore, a battery has little cause to fail if it is given proper supervision and care. These ministrations need be neither burdensome and expensive nor necessitate special skill. It is the intention in this article to outline briefly the way to safeguard the lead battery and obtain the service of which it is capable. This consists mainly in paying adequate attention to cleanliness, replacement of water, location and correction of troubles and careful charging.

With the lead battery, cleanliness is of greatest importance and neglect of this requisite will cause rapid physical deterioration and possibly destructive accidents. If care is taken in accordance with the following suggestions such troubles can be avoided.

### Surfaces Should Be Protected by Paint

The interior of the battery compartment, including all exposed metal surfaces other than lead, the wood blocking and the battery trays, must be kept covered with a good acid-resisting paint. The original application will last indefinitely if well applied and cared for. Corrosion of terminals that are not lead coated may be prevented by applications of grease or vaseline. Foreign material and dirt of all kinds must be excluded from the compartment by keeping the covers in place while the locomotive is in operation. Before the covers are removed for the inspection or charging of the battery all precautions should be taken that no material can fall from the roof of the place where the locomotive is standing.

Dilute acid will accumulate on the cell covers and terminal posts from the spray emitted when the batteries are being charged or from creepage if the gaskets become loose. Prompt removal is essential to prevent creepage to the trays and unprotected metal parts, with consequent disintegration and corrosion, which may result in tray destruction, current leakage, grounds, short-circuits or high resistance contacts.

The tops of the cells should be wiped frequently with a damp cloth, and if the compartment is arranged to drain at a point where water will not get on the equipment it will be advantageous to flush it out occasionally with water, after first tightening all filler plugs. Acid on metal or wood parts is difficult to remove completely. It may be neutralized by applying a soda or ammonia solution, care being taken that none enters the cells. Any acid in the tray space left by the removal of a leaky jar should be similarly treated. After such an application all wetted parts should be rinsed with water and dried.

The cells lose water chiefly by gassing, but partly also by evaporation. If the water is not replaced, the electrolyte is concentrated, some of the active plate surface is exposed and the life and capacity of the plates is reduced.

### Battery Needs Water Only Once a Week

Normally water need not be added to a battery oftener than once a week. This water should be replaced before starting the charge or soon after, so as to insure good mixing and a reliable hydrometer reading at the end. A neat and convenient instrument for doing this is a glass or hard-rubber syringe with a rubber bulb. The cell should not be filled higher than the specified level.

Only pure distilled water should be used unless the ordinary supply has been analyzed and approved by the battery manufacturers. Even small quantities of impurities may seriously harm a battery, and no metal vessel unless it is made of lead is suitable for storing make-up water; glass, earthenware or rubber are the preferable alternative materials.

The specific gravity of the electrolyte furnishes a reliable indication of the condition of battery cells. Its correct value for locomotive batteries is usually from 1.27 to 1.28 at 70 deg. F. In taking hydrometer readings it is necessary to correct for cell temperature by adding or subtracting one in the third decimal place for each three degrees above or below 70.

There can be no appreciable loss of acid from a battery cell except through spilling or leakage. The gravity should never be adjusted by adding electrolyte until after a careful investigation. Falling off in specific gravity, lack of capacity, rapid evaporation of electrolyte and overheating on charge occurring gradually and uniformly throughout the battery signify a dangerous accumulation of sediment that must be removed if injury to the battery is to be prevented.

Local cell trouble is most easily detected when giving the battery an equalizing charge and may be indicated by the low gravity of some particular cell or by its refusal to gas freely after long overcharge. Corrective measures should be applied at once. The elements may be lifted from the jar and the plates inspected. Damaged separators that may have caused short-circuits

*This will be followed soon by an article by the same author on the care and maintenance of the nickel-iron battery.

should be replaced, the new ones being inserted from the bottom and forced all the way up. None should be omitted and all should project equally on each side of the plates. The element with its cover attached should be placed on edge for this operation. Sediment should be removed from the jar if near the top of the ribs and any moss that may have formed on the edges of the plates should be dislodged. Before the sediment is cleaned out the electrolyte should be decanted, to be used again if in good condition. Do not wash the plates.

A leaky cell will seem to require abnormal quantities of water and the gravity will fall through dilution. This indication may be confirmed by examining the tray for moisture, and a new jar should be installed as quickly as possible.

Before repairs are made the battery should be given an equalizing charge, upon completion of which the repaired cells may be filled with electrolyte of 1.28 specific gravity. Repaired cells should be charged until the gravity reaches a maximum and remains stationary for three hours. If the gravity is then above or below normal it can be readjusted by drawing off a small quantity of electrolyte and replacing it with pure water or with electrolyte of 1.28 gravity. Mix thoroughly and test by a short gassing charge.

### How to Remove Trays, Cells and Covers

In removing trays from the battery compartment the blocking, if any is used, should be removed with care and adjacent tray terminals marked to insure replacement in the same position. Trays should be lifted by the handles, great care being taken not to spill the electrolyte or drop the trays. To remove an element the cell connections at the posts should first be broken. If the joints are burned this should be done with a connector puller, and if they are bolted, by unscrewing the bolt. The cell, including the jar, may now be lifted from the tray by gripping the posts with gas pliers if necessary.

The cover may be detached from the jar by running a hot putty knife through the sealing compound close to the jar wall and removing all the compound adhering to the jar and cover. The element may be withdrawn by holding the jar between the feet and pulling on the two posts as when lifting the complete cell from the tray. The jar may be softened and expanded sufficiently to free the element, should it stick, by submerging the cell in hot water almost to the top of the jar.

In replacing the element one terminal may be held with gas pliers and also gripped near the bottom to prevent the plates from spreading and the outer ones from starting down the outside of the jar. To seal, hot compound may be applied with a hot putty knife, after the cover and exposed portion of the inner jar wall have been wiped with ammonia-moistened waste to neutralize the acid. In making burned connections no soldering flux of any kind should be used. Burned connections can be made easily with a carbon burning set by carefully following the instructions furnished therewith.

Contrary to popular belief, a battery may be discharged safely at any value of current it will deliver. The terminal posts and connecting straps of practically all locomotive-type batteries are now of adequate section for any possible rate of discharge. Of course, the ampere-hour capacity on sustained discharge will decrease as the current increases, but if rest periods are allowed between discharges, practically the rated capacity may be obtained. At the end of complete discharge the specific gravity of the electrolyte in most locomotive-type batteries will be 1.15 to 1.175. The discharge should be stopped and prompt recharge begun when this gravity is reached or when the voltage drops to 1.7 per cell with normal discharge current flowing.

For locomotive service an ampere-hour meter is a reliable guide to the state of the battery charge, provided the accumulator is periodically given equalizing charges to reduce completely the small quantity of active material which is frequently left unchanged after a normal charge, and also to restore the cells which, through individual peculiarities, may have become abnormally low, and to prevent the cumulative effect of slight inaccuracies in the calibration and compensation of the meter.

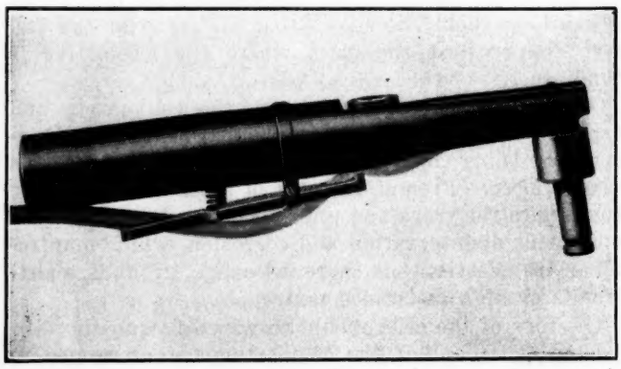
## Filler for Batteries That Does Not Slop And Shows Light When Cell Is Full

IN PUTTING makeup water into the cells of a storage battery, care must be taken to prevent this water from running over and spilling upon the tops and sides of the cells. Furthermore, the battery jars should be filled up to a certain height and no more. To accomplish these results with the aid of the ordinary appliances available around the coal mine is by no means easy.

To facilitate the replenishment of a battery with either distilled water or electrolyte and assure that each cell shall contain exactly the right amount, the instrument shown in the accompanying illustration, which is known as a cell filler, has been devised and is now being marketed by the Exide Storage Battery Co., of Philadelphia, Pa.

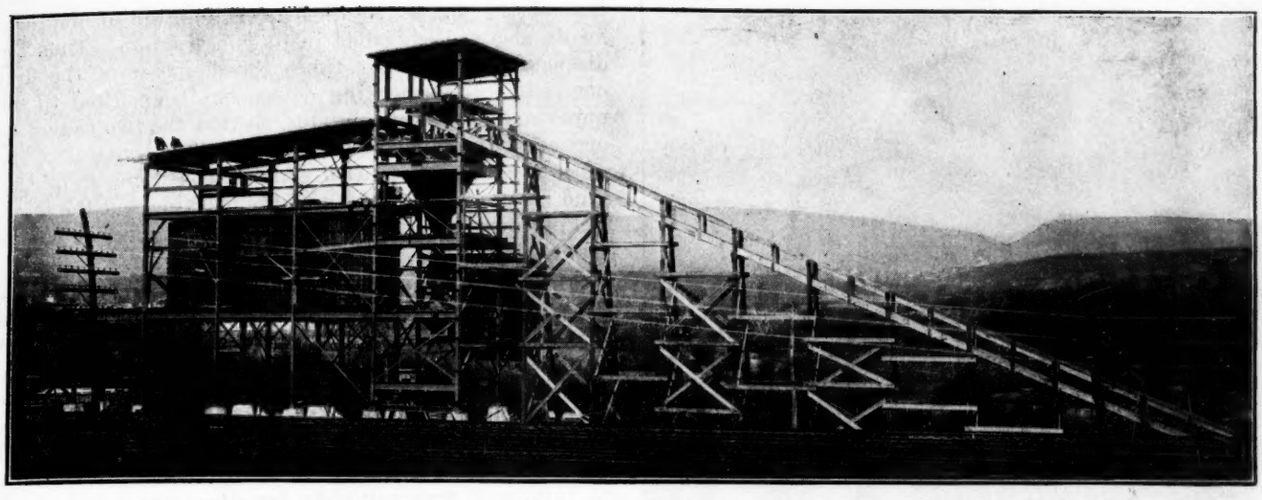
This device is extremely simple. In operation the barrel is grasped by the operator and the nozzle inserted in the filling vent of the cell. The operator's index finger rests upon the trigger lever on the under side of the barrel or body of the instrument. When this trigger is pulled or depressed, water will flow through the hose into the cell. When the electrolyte rises to the proper height it makes an electrical connection and lights a small bulb on the upper side of the instrument. The trigger is then released and the flow of the liquid stopped. This operation is repeated with each cell requiring replenishment.

By this means time and labor are saved and, what is more important, the cells of the battery are uniformly filled. Overflowing may be avoided and the tops and sides of the cells kept dry.



FILLER THAT FLASHES SIGNAL WHEN CELL IS FULL

Release of pressure on the trigger under the filler shuts off the flow of water from the hose almost instantaneously. The nozzle of the filler is so constructed that a light will be shown when the water in the cell reaches the required level.



WINTON WASHERY OF STAPLES & BELL, WHERE A FLOTATION PLANT WILL BE OPERATED

# Operating Records and Construction Layouts of Plants Using Chance Flotation Process of Preparing Coal

## Coal and Rock Are Separated in a Continuously Agitated Mixture of Sand and Water—Unsized Material Can Thus Be Treated as Fast as Slate Can Be Discharged from the Bottom

By Dever C. Ashmead*
Kingston, Pa.

TAKING advantage of the difference between the specific gravities of coal and the impurities accompanying it, a new flotation process bids fair to modify greatly the methods now employed in the preparation of anthracite and in the design of equipment used for that purpose. It will also change markedly the arrangement and design of preparators. This process was invented by T. M. Chance, of H. M. Chance & Co., of Philadelphia. The basic principle involved is that of producing by mechanical means a liquid the specific gravity of which is intermediate between that of coal and its accompanying impurities. In such a liquid, coal will float, whereas slate and bone will sink. As the specific gravity of coal itself varies somewhat, provision is made in this device for altering the weight per cubic foot of the liquid to suit the quality of the material being treated.

In order to obtain the desired results the machine utilizes a mixture of fine sea sand and water. The maximum specific gravity obtainable with these substances will closely approximate that of the sand itself, while it may vary from this down to unity or the specific gravity of the water used. The value actually employed will depend upon the nature of the coal to be treated and the allowable amount of bone to be shipped with the mine product.

This apparatus permits the complete elimination of all slate from the coal. It consists of a cone-shaped receptacle containing the mixture of sand and water, the sand being kept from settling by the action of an agitator making 14 r.p.m. Water is fed to the machine through the refuse discharge pipe at the bottom of the cone, and makeup sand is pumped from the sand sump to a launder discharging into the cone top.

At the West Nanticoke plant of Staples & Bell, where one of these coal separators is installed, the water flows upward through the cone at the rate of 6 in. per minute, and discharges from the overflow at the top at the same speed. Coal is fed by a chute to the top of the cone. This material is unsized—that is, it is a mixture of all sizes smaller than egg. Egg and larger coal is screened out of the run-of-mine, and after hand picking to remove large lumps of stone, goes to a set of crushing rolls. After being broken down it passes to the separator with the balance of the coal.

### Density Such That Good Coal Will Float

As the specific gravity of the liquid in the separator is maintained intermediate between that of the coal and that of the rock and slate, all the coal and the lighter pieces of bone float, and the rock, slate and heavy bone sink. The coal and light bone go over the overflow along with the surplus water rising through the cone. This product with some sand adhering to it then passes over a screen, where the coal is thoroughly washed with clean water and the sand thus removed. Thence it is fed to a set of shaker screens, from which the various sizes made are sent to their respective pockets. Samples are taken from time to time, of course, to make sure that no excess bone is included.

Within the cone itself slate and heavy bone sink to the bottom and enter the discharge pipe. At the lower end of this pipe a slide gate communicates with a refuse chamber also provided with a gate at its lower extremity. When the upper valve is closed and the one

*Anthracite editor, *Coal Age*.

WEST NANTICOKE WASHERY OF STAPLES & BELL
Flotation plant under construction is shown on right, where the agitation cone can be seen in place.

at the bottom is open, it allows the rock to pass to a refuse pocket, from which it is removed by a dragline or scraper conveyor.

As the refuse moves down the discharge pipe from the cone it is partly freed from sand by the action of the water moving upward to the cone through this passage. Some sand passes out through the refuse chamber, however, and when the waste material is discharged from the refuse pocket it goes over a small screen, where this sand is washed off. Thence the slate and rock are sent to the dump.

Sand from the coal and slate screens is conveyed through pipes to the sand sump, being thus returned to circulation. In the sump the sand settles and is by this means separated from the surplus water. It is pumped back to the cone as needed.

### Balls Used to Test Density of Fluid

From time to time tests are made on the specific gravity of the separating medium so as to ascertain whether it is being kept at the proper density. This test consists in placing balls of varying known specific gravities within the cone. If these test balls sink, sand is added to the mixture in the cone until it is brought to the desired weight per cubic foot. If they float more water is added.

At west Nanticoke a 7-ft. 6-in. cone is installed. A 50-hp. motor is connected to this machine, but from 11 to 16 hp. only is normally consumed. This motor drives the agitator, the refuse conveyor and the shaking screen. Another motor drives the sand pump. This is a 25-hp. machine, but it operates at 20 hp. Consequently, in all about 36 hp. is required to drive the entire equipment.

The latest installation of one of these separators is at the Beaver Brook plant of the C. M. Dodson Coal Co. The placing of this equipment, however, was not quite completed before the present suspension of operations throughout the anthracite region began on April 1.

This machine has a diameter of 15 ft., or just twice that of the one at Nanticoke. A number of improvements also are embodied in its construction. Thus the discharge pipe is four times the diameter of the first one, and an interlocking device has been fitted to the upper and lower refuse gates, so that the two cannot be opened at the same time. Otherwise the contents of the cone might be allowed to escape. An accident of this kind is, of course, no fault of the machine, but the interlocking arrangement will tend to guard against human frailties.

Another improvement is the introduction of pipes into the side of the cone, through which water may be forced to start or aid in starting the agitation of the sand should the machine be shut down for any reason. The refuse chamber on this machine is of larger size, so that its contents will not have to be emptied as frequently as was that in the earlier model. A small auxiliary chamber above the upper gate has a capacity of 1½ tons of rock and slate, and the main chamber will hold 4 tons of refuse.

### Will Reduce Height of the Breaker

Before taking up the capacities and the results obtained through the use of this process it might be well to refer to the accompanying illustrations showing plans designed for a new type of preparation plant utilizing this kind of separation machine. This illustration shows a building 129 ft. in height. If, however, a conveyor were installed, instead of a tower hoist, as is the usual practice in breakers, to take the coal to the top of the building, the height of the structure would be less than 100 ft.

In this preparation plant the coal will be first dumped into pocket (3). Thence it will be discharged by the feeder (4) onto the lump-and-steamboat shaker (5). From the deck of this shaker the coal will pass to the traveling picking table (7), where large pieces of rock will be removed, the cleaned product going to the crushing rolls (8). Coal going through shaker (5) will pass to a shaking chute (6), thence to a spiral chute, after which it will join the crushed coal from the rolls (8) moving in the chute (9). By this latter chute it will be delivered to the washing cone (10).

The clean coal overflowing from this machine will go to the bank of shakers (11, 12, 13 and 14) to be sized. Broken coal passing off the top of these shakers will go to a set of rolls (18) and be crushed, after which it will be taken by the conveyor (19) and by it delivered to the cone for re-treatment. Sized products from the various other decks of the shakers will pass by means of shaking chutes (15, 16, etc.) to their proper pockets. Rock from the refuse tank below the cone will be removed and discharged to a shaker that will separate all pieces above chestnut size. This will go to the refuse roll (22) and be then returned by the conveyor or tower hoist and passed through the separator for re-treatment.

The small refuse will be washed for the removal of sand, after which it will pass to the rock pocket (24). Sand from both shakers (21 and 23) will be taken by sand chutes to the storage pit (26). The makeup sand pump (27) removes this material from the sand storage pit or sump (26), delivering it to the makeup sand cone (28). The sand recovered by washing on shakers (11, 12, 13 and 14) is conveyed by a sand chute (29) to the sand sump (30), from which it is taken by the sand pump (31) and delivered to the cone for use. This sand passes through pipe (33). Overflow from the sand sump (30) passes to a culm settling cone (34).

from the bottom of which the culm is discharged. Water from the cone goes to a sump, from which it is returned by a pump (37) to the water tank (38).

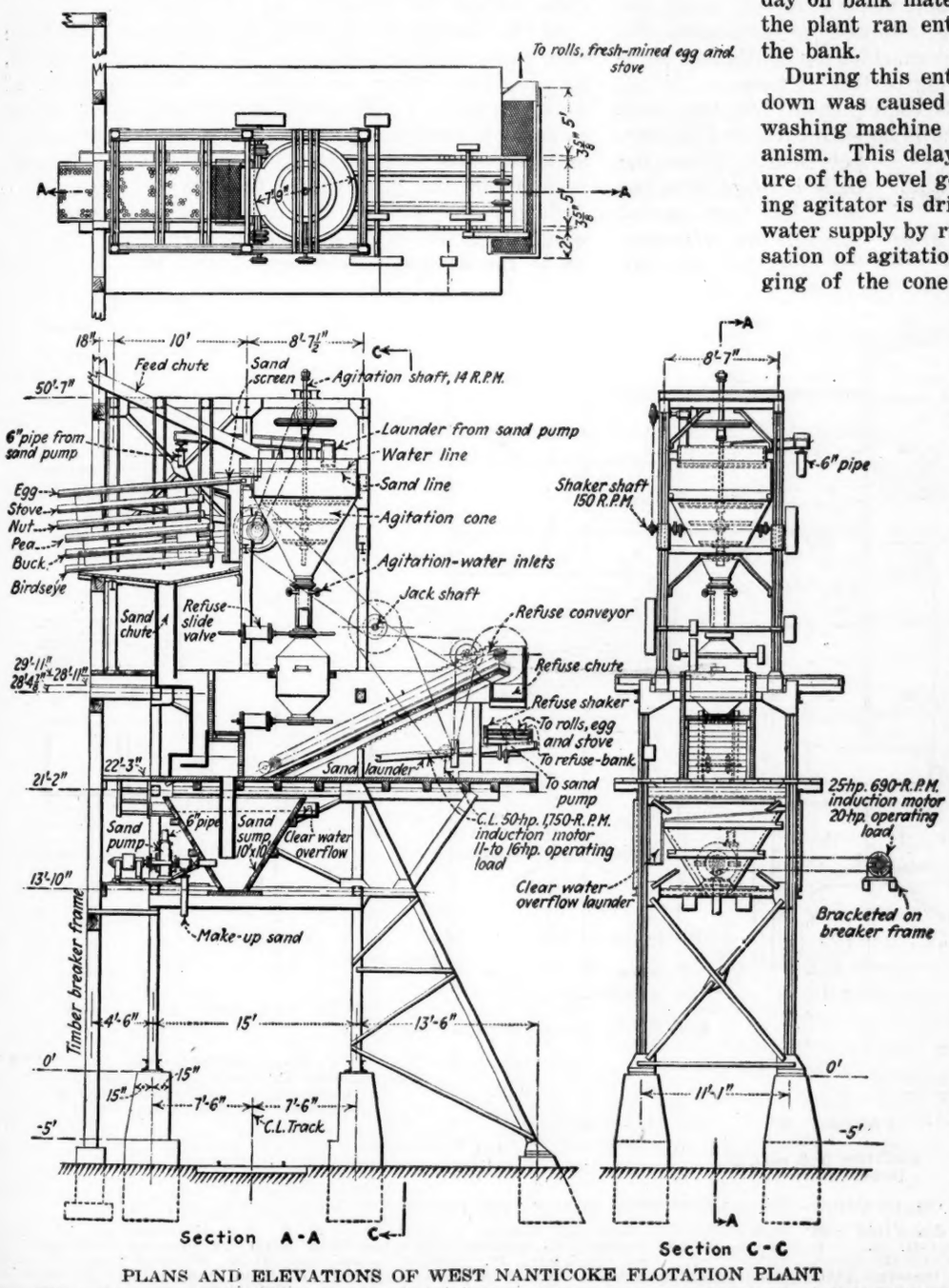
Operation of a double preparator of this description with a capacity of 2,000 tons of coal per day, the feed being 3,333 tons, 40 per cent of which is refuse, will require 41 men. The cubical contents of this structure, as shown, will be 670,000 cu.ft., and the volume per ton of daily capacity will be 335 cu.ft. Preliminary estimates show that a building of this type and size would require 475 tons of structural steel.

The preparation force required in such a building would be as follows: One foreman, 1 bank-and-loader boss, 1 hoist man, 2 dumpmen, 8 platform men, 2 cone operators, 2 cone-refuse dischargers, 1 pumpman, 2 culm men, 2 roll operators, 2 shaker-screen men, 1 oiler, 6 railroad-car loaders, 1 sand man, 2 water men, 3 refuse-larry operators, 2 repairmen, 1 electrician and 1 inspector, making a total of 41 men.

Attention may now be turned to the results actually obtained by this process. The Nanticoke plant was placed in commercial operation in October, 1921, and with the exception of the month of January, has been continuously operated up until April 1. So far as is known, every ton of coal shipped from this plant since last September has been prepared by this process. During a portion of November and throughout practically the whole of December the plant was operating two shifts per day, the day shift working on freshly-mined coal for a part of the time and during the rest of the day on bank material. During the night the plant ran entirely on material from the bank.

During this entire time only one shutdown was caused by the breaking of the washing machine or any part of its mechanism. This delay was caused by the failure of the bevel gear by which the revolving agitator is driven. A stoppage of the water supply by river débris caused a cessation of agitation, and it was this clogging of the cone to which the accident should be ascribed. As before stated, this machine is 7 ft. 6 in. in diameter and when washing bank material its capacity is limited only by the speed with which the slate can be trapped out through the slate valves. It has been found to treat an average of 25 tons per hour. On two occasions capacity tests have been conducted when operating on culm-bank material. In both cases approximately 62 tons gross of bank coal were passed through the machine per hour. A fully loaded railroad car of coal was delivered by the machine in two hours without overfeeding.

Of course, if the machine is fed at a more rapid rate than that at which the refuse can be withdrawn, slate accumulates in the lower portion of the cone and it becomes necessary to stop the feed until this accumulation can be trapped out. From 5 to 15 minutes is consumed in removing such an accumulation. Were the plant equipped




PLANS AND ELEVATIONS OF WEST NANTICOKE FLOTATION PLANT

The division of the coal from the slate or bone is done before the coal is sized. When the coal flows over from the cone it is screened into egg, stove, nut, pea, buckwheat and bird's-eye and the fine sand is removed. The refuse falls to the bottom of the cone, is trapped in a chamber having an upper and lower gate and is transported to a chute by a refuse conveyor.

with an automatic feeder, such overfeeding would not occur. After the operatives have become familiar with the capacity of the machine, however, trouble from this cause has been rare, and a feeder such as has been suggested has not been deemed necessary.

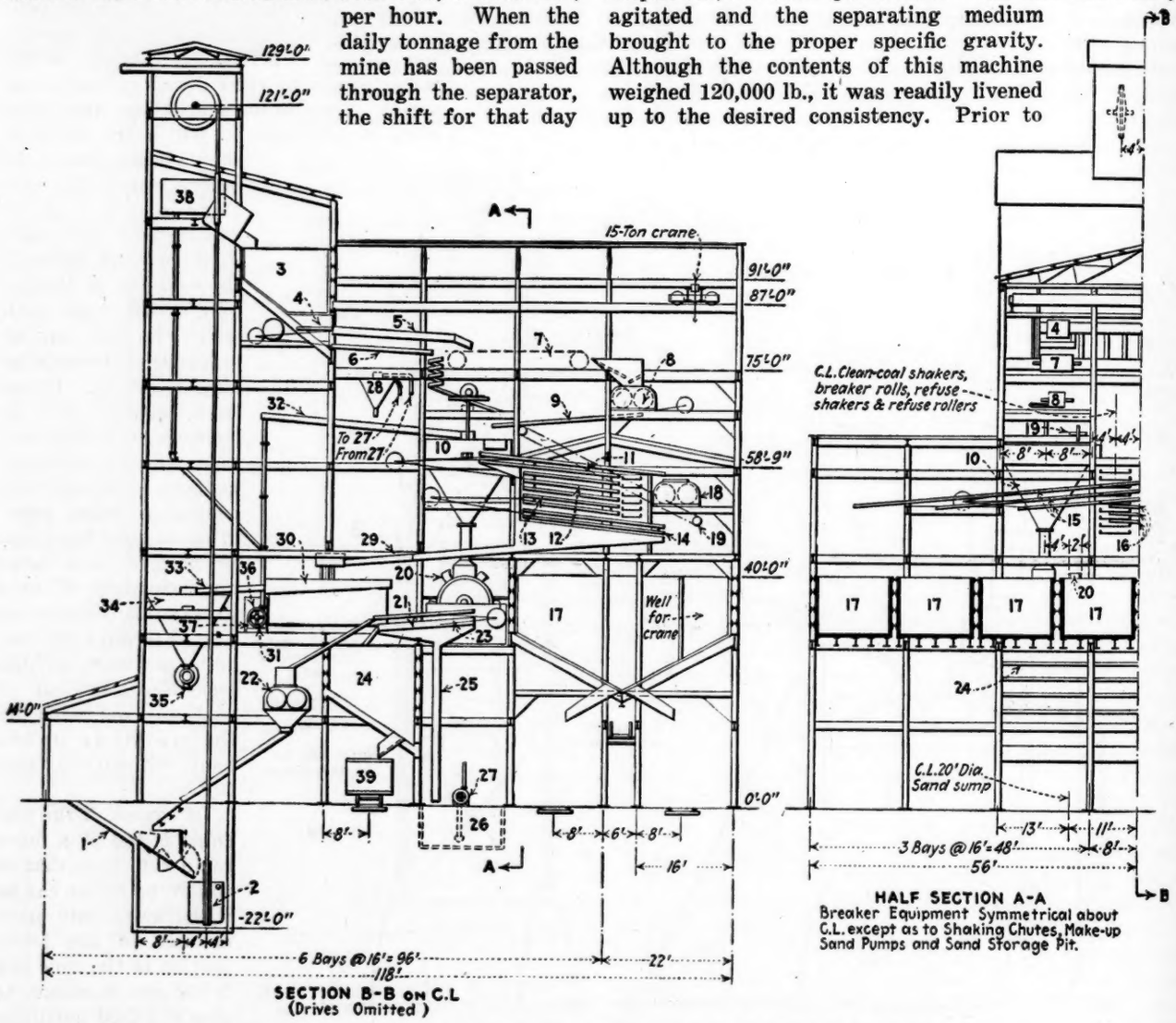
Not alone in this process is it advisable to maintain a steady feed; in all preparators, regardless of their method of operation, steady feeding gives much better results than when coal enters the apparatus in intermittent rushes. No preparation machine can show good results if fed improperly.

The capacity of this machine when working upon freshly mined coal, as shown by its operation through the period above mentioned, appears to be between 50 and 60 tons of feed per hour. The output of the mine furnishing coal to this plant being relatively small, few opportunities have been afforded to determine the maximum capacity of the machine by continuous feeding at high rates over long periods of time.

The mine cars at this colliery hold 1.93 tons each and the usual rate of feed is 30 such cars, or 57.9 tons, per hour. When the daily tonnage from the mine has been passed through the separator, the shift for that day naturally ends. The longest consecutive run for which coal from the mine was available has been 150 cars, or 289½ tons, in five hours. When running on freshly mined coal, the overflow capacity of the machine also is a factor. This, with the type of overflow employed at this plant, seems to be about 50 tons of clean coal per hour.

By the introduction of a scraper, or a coal wheel, the rate of discharge can be materially increased. If such a device were added to the machine, its capacity would be limited only by the amount of slate or refuse that could be removed through the discharge pipe. The overflow type of discharge was employed at this plant because it breaks the coal less than do mechanical devices. With the overflow discharge the coal actually slides out of the machine onto the shakers.

At the Beaver Brook plant, of course, no tests have been made, as this installation has just been completed, its operation being prevented by the suspension of work on April 1. However, on the day prior to the suspension, sand was placed in the cone and was readily agitated and the separating medium brought to the proper specific gravity. Although the contents of this machine weighed 120,000 lb., it was readily livened up to the desired consistency. Prior to




TWO ELEVATIONS OF A FLOTATION PLANT FOR TREATING ANTHRACITE

In the illustration 1 is dump bin and measuring chute; 2, 240 cu.-ft. skip; 3, feed bin; 4, feeder; 5, lump and steamboat shaker; 6, shaking chute; 7, traveling platform; 8, rolls to broken; 9, shaking chute; 10, sand-flotation cone; 11, clean-coal shakers making broken and egg; 12, clean-coal shakers making stove, egg and pea; 13, clean-coal shakers making No. 1 and No. 2 buckwheat; 14, clean-coal shakers making Nos. 3 and 4 buckwheat; 15, shaking chutes making egg, stove and nut; 16, shaking chutes making pea and No. 1 and No. 2 buckwheat; 17, pockets; 18, broken-to-egg rolls; 19, egg conveyor; 20, refuse wheel; 21, refuse shaker to stove; 22, refuse rolls to nut; 23, refuse shaker to culm; 24, refuse and platform rock pocket; 25, sand chute to 26; 26, sand storage pit; 27, make-up sand pump; 28, makeup sand cone; 29, sand chute to 30; 30, sand sump; 31, sand pump; 32, sand chute to 10; 33, chute to 34; 34, culm-settling cone; 35, culm discharge; 36, chute and water sump; 37, water pump to 38; 38, water tank; 39, rock larry. The 15-ft. coal separator has a shipment capacity of 2,000 tons per day.

deciding to install one of the machines, Weston Dodson & Co. ran a test on three carloads of coal, with the results shown in Tables I, II and III.

TABLE I—FRESHLY MINED COAL FEED, AVERAGE FOR THREE HOURS, OCT. 23, 1921

| Size | Coal, per Cent | Light Bone, per Cent | Chipped Coal, per Cent | Chipped Slate, per Cent | Slate, per Cent | Ash Content, per Cent |
|---|---|---|---|---|---|---|
| Egg | 14.8 | 0.0 | 0.7 | 0.5 | 9.0 | .... |
| Stove | 22.5 | 0.0 | 0.9 | 0.5 | 8.1 | .... |
| Nut | 14.8 | 0.0 | 0.0 | 0.0 | 4.0 | .... |
| Pea | 7.5 | 0.0 | 0.0 | 0.0 | 1.7 | .... |
| No. 1 buckwheat | 9.4 | 0.0 | 0.0 | 0.0 | 0.0 | 29.0 |
| Rice and barley | 5.6 | 0.0 | 0.0 | 0.0 | 0.0 | 26.4 |
| Total | 74.6 | 0.0 | 1.6 | 1.0 | 22.8 | .... |

TABLE II—COMPOSITION OF WASHED COAL AFTER SIZING, AVERAGE FOR THREE HOURS

| Size | Coal, per Cent | Light Bone, per Cent | Chipped Coal, per Cent | Chipped Slate, per Cent | Slate, per Cent | Ash Content, per Cent |
|---|---|---|---|---|---|---|
| Egg | 100 | 0.0 | 0.0 | 0.0 | 0.0 | .... |
| Stove | 100 | 0.0 | 0.0 | 0.0 | 0.0 | .... |
| Nut | 100 | 0.0 | 0.0 | 0.0 | 0.0 | .... |
| Pea | 100 | 0.0 | 0.0 | 0.0 | 0.0 | .... |
| No. 1 buckwheat | 100 | 0.0 | 0.0 | 0.0 | 0.0 | 12.2 |
| Rice and barley | 100 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 |

TABLE III—COMPOSITION OF REFUSE FROM SLATE CONVEYOR, AVERAGE FOR THREE HOURS

| Size | Coal, per Cent | Light Bone, per Cent | Chipped Coal, per Cent | Chipped Slate, per Cent | Slate, per Cent |
|---|---|---|---|---|---|
| Egg | 0.0 | 3.2 | 3.3 | 2.2 | 43.0 |
| Stove | 0.0 | 2.5 | 2.8 | 2.6 | 27.6 |
| Nut | 0.2 | 0.2 | 0.2 | 0.1 | 7.7 |
| Pea | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 |
| No. 1 buckwheat | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 |
| Rice and barley | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 |
| Total | 0.2 | 5.9 | 6.3 | 4.9 | 82.7 |

Tests, the results of which are set forth in Tables IV to VI, were made on bank material after roughing with jigs in order to remove the heavy rock only.

TABLE IV—COMPOSITION OF BANK FEED, TWO-HOUR RUN MADE ON OCT. 26, 1921, AFTER REMOVING HEAVY ROCK

| Size | Coal, per Cent | Chipped Coal, per Cent | Chipped Slate, per Cent | Slate and Bone per Cent |
|---|---|---|---|---|
| Stove | 4.3 | 0.5 | 0.5 | 11.0 |
| Nut | 11.0 | 1.5 | 1.0 | 32.0 |
| Pea | 7.0 | 0.0 | 0.0 | 14.0 |
| No. 1 buckwheat | 5.0 | 0.0 | 0.0 | 10.2 |
| Rice and barley | 2.0 | 0.0 | 0.0 | 0.0 |
| Total | 29.3 | 2.0 | 1.5 | 67.2 |

Items are percentages of total sample.

TABLE V—COMPOSITION OF WASHED COAL, TWO-HOUR TEST

| Size | Coal, per Cent | Light Bone, per Cent | Bone, per Cent | Slate, per Cent |
|---|---|---|---|---|
| Stove | 86.0 | 9.0 | 4.5 | 0.5 |
| Nut | 91.7 | 5.0 | 3.0 | 0.25 |
| Pea | 95.0 | ... | 4.0 | 1.0 |
| No. 1 buckwheat | 93.0 | ... | 4.0 | 3.0 |

Items are percentages of average samples.

TABLE VI—COMPOSITION OF REJECT MATERIAL FROM SLATE CONVEYOR

| Size | Coal, per Cent | Chipped Coal, per Cent | Light Bone, per Cent | Slate and Bone, per Cent |
|---|---|---|---|---|
| Stove | 0.5 | 1.0 | 0.0 | .... |
| Nut | 1.0 | 0.0 | 0.0 | .... |
| Pea | 2.0 | 0.0 | 0.0 | .... |
| No. 1 buckwheat | 0.2 | 0.0 | 0.0 | .... |
| Rice and barley | 0.0 | 0.0 | 0.0 | .... |
| Total | 3.7 | 1.0 | 0.0 | 95.2 |

Items are percentages of total sample taken from the slate conveyor.

By the use of this process the degradation of the coal is much lessened. In a preparation plant such as the one shown in the accompanying drawing the distance through which the coal must travel before it finally comes to rest in the coal pocket is much shorter than in the ordinary building. Furthermore, in sizing the coal at the head of the building, the small particles act as a cushion for the larger ones.

The complete elimination of jigs also reduces breakage appreciably. In this machine the material is not, as in jigs, caused to alternately rise and fall. Consequently the abrasion of one particle of coal by another is greatly lessened. Furthermore, the delay in sizing the coal till the rock has been removed from it, still further reduces breakage.

This process of preparation requires much water. At West Nanticoke it is possible to draw this from the Susquehanna River. The water in this stream is low in acid and consequently it corrodes but little the lining of the separator. Should these machines be installed in localities where a copious supply of fresh water was not available and mine water had to be used, the effect of acid on the tank and parts of the machine might be serious. However, this difficulty could be met in many ways. Thus the water could be treated with lime and the acid neutralized, or the parts of the machine exposed to the action of the water could be made of bronze, cast iron or some non-corroding metal. The sand, of course, has an abrasive action when agitated, but this is not serious and readily may be overcome.

So far as I have been able to learn, investigations already conducted would indicate that nothing will interfere with an extended utilization of this process. It promises to cheapen the cost of production, decrease the amount of capital invested, reduce the number of men employed, better the product and increase the return because of lessened degradation. It would appear to have like advantages in the cleaning of bituminous coal.

## Ultimate Analysis of Coal by Determination From Sodium Peroxide Fusion

IN a paper before the American Chemical Society recently, Prof. S. W. Parr proposed that the ultimate analysis of coal be made by determinations from the sodium peroxide fusion. The percentage of sulphur and carbon from these fusions can be determined by ordinary methods. The hydrogen which contributes to the heat value of the coal is then calculated by subtracting from the total heat that which was derived from the sulphur and carbon. Assuming the nitrogen content to be 1.25 per cent, the remainder of the heat is then assumed to be due to the hydroxyl (OH) radical.

This OH can, of course, be considered as being composed of eight-ninths oxygen and one-ninth hydrogen. Thus the complete analysis for hydrogen, oxygen, sulphur and nitrogen is available. Prof. Parr states that this method has proven satisfactory for engineering use, especially for work where calculation of stack losses is necessary. The results are, he believes, accurate within 5 per cent on any constituent.

## Heating Values of Wood

THE heating values of typical samples of wood were reported by Prof. S. W. Parr recently in a paper before the American Chemical Society in Birmingham. Professor Parr finds that drying of the wood samples is the most difficult portion of the analysis. His results show the following heat values in British thermal units per pound of dry wood: Oak, 8,556; pine, 8,836; birch, 8,458.

The percentage of moisture driven off below 105 deg. C. from these woods after they are thoroughly air dried is reported by Professor Parr as follows: Oak, 8.35; pine, 8.88, and birch, 10.18.

THE AVERAGE TRACT of land in Illinois from under which coal is recovered by a single mine is about two miles square —slightly over 2,500 acres.

# Problems of Operating Men

Edited by James T. Beard

## Oil and Gas Wells in Vicinity of Coal Mines

### Illinois Law Relative to Oil and Gas Wells—Distance from Mine Opening — Maps to Be Filed — Plugging Abandoned Holes — Penalties for Violations

UPON reading the inquiry relating to the mining of coal in the vicinity of gas wells, *Coal Age*, Mar. 2, p. 374, I thought that it would be of interest to draw attention to the fact that practically all of the suggestions offered by the editor in reply to the inquiry are contained in the revised mining law of Illinois.

This law went into effect June 7, 1911, supplanting the old law of six years previous relating to the sinking, operating and final filling of oil and gas wells, in mining districts.

Briefly stated, the law prohibits the drilling of oil or gas wells nearer than 250 ft. to any mine opening used as a means of ingress or egress of persons employed in the mine, or used as an air shaft.

Another section makes it the duty of any person or firm in charge, and the owner of the land on which a well is drilled that penetrates a coal seam, to file, within fifteen days, in the office of the County Recorder and in that of the State Mining Board, a statement of facts, giving the location and depth of every such hole drilled.

#### Filling an Abandoned Wellhole

Still another section requires that, previous to the drawing of the casing and abandonment of a hole drilled in gas- or oil-bearing rock, it shall be the duty of said person or firm in charge, and of the owner of the land on which the hole is drilled, to securely stop and plug each hole in the following manner:

The hole to be first solidly filled, from the bottom to a point at least 20 ft. above the gas- or oil-bearing rock, with sand, gravel or pulverized rock, immediately on the top of which shall be seated a wooden plug not less than 2 ft. in length and having a diameter not less than ¼ in. smaller than the inside diameter of the well casing.

Then, for at least 25 ft. above that plug, the well is to be filled with the same material just mentioned, and that followed by another plug of the same size and kind as the first. Then, another 25 ft. of the same filling material must be placed above the second plug.

Finally, when the casing is drawn a tapered wooden plug at least 2 ft. in length, or a cast-iron ball having a diameter greater than that of the hole below the seat of the casing, must be seated at that point and the hole then filled to the top with the same material previously mentioned.

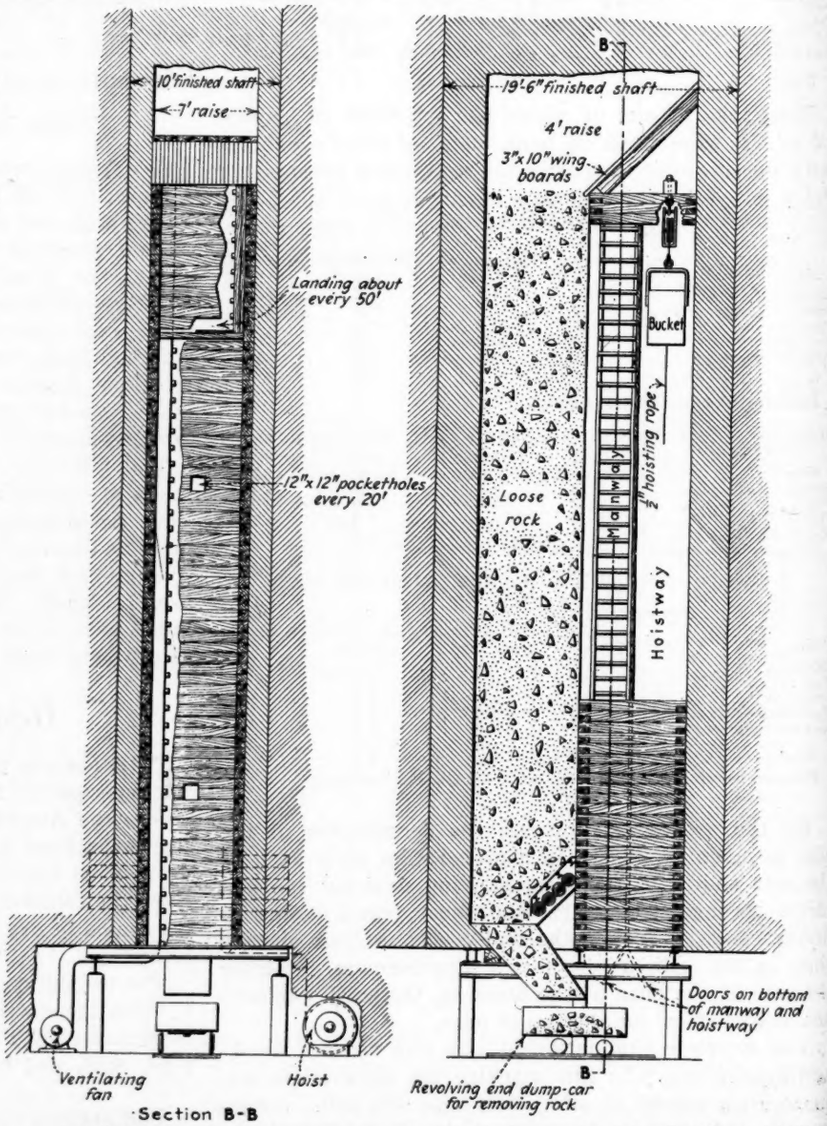
The law further requires the filing of the affidavit of at least two persons who were present when the hole was plugged, said affidavit to be filed with the County Recorder, within fifteen days after the hole was plugged. The law provides a penalty of $100 for every violation of this law and another $100 for every ten days such violation shall continue.

Peru, Ill. GASTON F. LIBIEZ.

## Driving an Upraise

*Sinking shallow shaft in loose material safer than driving upraise—In deep shafts, work expedited by sinking and upraising at the same time—Details of operation in upraising.*

HAVING had a long experience in shaft sinking and in working vertical coal seams in different sections of the United States and Canada, I




SECTIONAL ELEVATIONS OF SHAFT DRIVEN AS AN UPRAISE

was much interested in the inquiry of a Pennsylvania superintendent asking for the best method of sinking a shaft, which appeared in *Coal Age* Feb. 2, p. 212.

The correspondent appears to be favorably inclined toward driving an upraise, in preference to sinking a shaft from the surface. I quite agree with the statement made, in the reply to this inquiry, that "the sinking of a shallow shaft from the surface will not only be safer but prove more economical and quicker, in the end, than to attempt to drive an upraise from the mine."

In the case mentioned, the proposed shaft is only 70 ft. in depth, and the material is alternate clay and shale formation, which might prove difficult to support safely, in upraising. Again, it is possible to sink a shaft, to this depth, with a derrick, which will avoid the expense of putting up a headframe.

### Danger in Driving an Upraise

It cannot be denied that sinking a shaft is always a safer method to employ than upraising. When driving an upraise all loose material must be barred down, following a blast; and it is often hard for the worker to find a safe place to stand, while doing this work. Where experienced men are employed, however, comparatively few accidents happen.

Believing that some of my experiences will be of interest in this connection, I am persuaded to outline briefly the method employed in driving an upraise to meet the sinking operations already started from the surface, in the sinking of a shaft to a depth of 640 feet.

Before proceeding, however, let me say that if the conditions, in the shallow shaft here mentioned, will permit of stowing the excavated material underground, and there is no great amount of water in the strata, driving an upraise would be wholly practicable. In that case, I would use the method I am about to describe.

### Method of Driving Upraise to Meet Shaft Sunk from Surface

The main hoisting shaft of the Raleigh-Wyoming Coal Co., at Glen Rogers, W. Va., had been sunk to a depth of 125 ft. The total depth to the coal is 640 ft. In order to expedite the work, a contract has been awarded me by Carl Scholz, vice president and general manager of the company, to drive an upraise, in the mine, to meet the sinking operations going on at the surface.

In the accompanying figures, I have shown the general method of proceeding with this work. The entire excavation below is 7 x 14 ft., in section. As shown in the detailed plan, this is divided into three sections, thereby providing a hoistway, about 3 x 5 ft.; a manway, about 2 x 5 ft., the remaining space being left to hold the excavated material.

The manway and hoistway are shown securely timbered, skin to skin, with 8 x 8 in. hardwood timber. The manway is equipped with steel ladders for the use of the workmen, if necessary. The hoistway is equipped with a bucket and cable, for hoisting material and men, and is protected from falling material by wing-boards, as indicated in the figure.

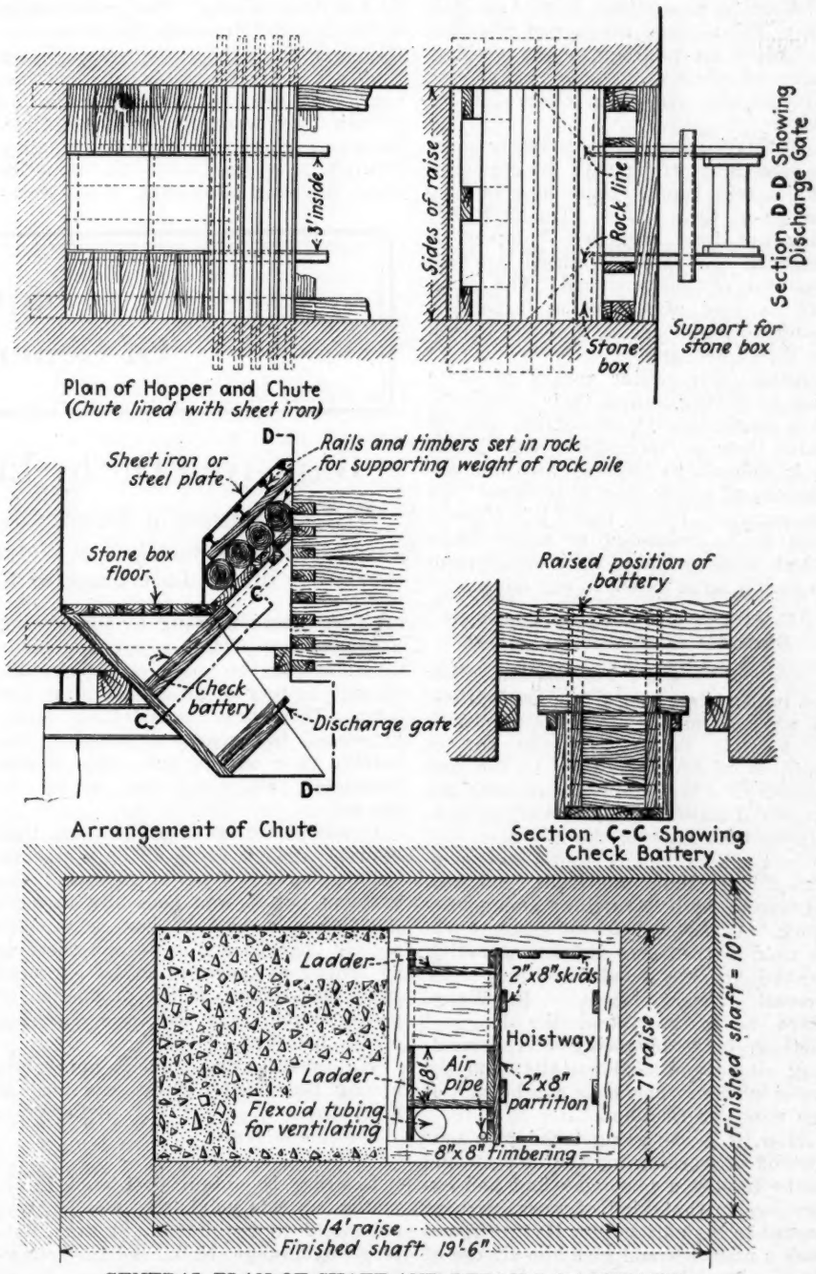
### Hoisting and Ventilating

A Waugh portable hoist is installed at the foot of the upraise, and the hoisting rope is carried up the side of the shaft to a headblock, which is suspended from crossbeams, in the center of the hoistway. On the other side of the shaft is a small 12-in. blower to which flexoid tubing is attached. This is extended up the manway to conduct the air to the top of the excavation and provide the needed ventilation.

In the manway, also, is an air pipe for conducting the compressed air for operating the drills, which are the Waugh self-rotating type known as "stopers." As the rock is very hard, 60 per cent dynamite is used for blasting, with first and second delay fuses.

The excavated material is allowed to fill the space in the side of the manway, which is kept full to provide the needed support for the workmen. This material is also drawn from the chutes at the bottom of the upraise, from time to time, as the work proceeds. By keeping the loose rock on a level with the top of the manway good standing room is afforded for the workmen.

At times the loose material will block, however, and need to be started again by means of a bar, or perhaps a small stick of dynamite may be required. For that purpose, there have been left, as shown in the figure, 12 x 12-in. starting holes. These are provided every 30 ft. in the timbers pro-




GENERAL PLAN OF SHAFT AND DETAILS OF UPRAISE

tecting the manway. If the material blocks it can generally be started by inserting a bar in one of these holes.

Experience in loading chutes, in steeply pitching coal seams, has taught me the need of leaving these holes for starting the material when it has blocked. Where this work had to be done at the bottom of the chute it has often proved a very hazardous undertaking.

J. W. POWELL, Supt.
Raleigh-Wyoming Coal Co.
Edwight, W. Va.

## Drawbacks in American Mining

*Lack of economy not due to foreign mine officials in charge—Interrupted operation and waste create loss in mining—Market conditions prevent steady operation of mines.*

DISCUSSING the question of "Economy in Mining Coal," James F. Gamille, in a letter, *Coal Age*, Feb. 23, p. 332, ascribes the lack of economy, in American mining, to the employment of English, Scotch and Welsh miners, who are given charge of the work.

If this is true there certainly must be something wrong with the coal companies who employ these men to take charge of their mines. The fact that they are thus employed, however, is evidence that their methods are not wasteful or uneconomical. The same can be said of our mine inspectors, many of whom are of English, Scotch or Welsh descent.

Again, this writer speaks of these men as having gained their experience in a single locality or district, and regards them as "men of one idea" whom it is difficult to impress with the advantage of a new plan of working. On the contrary, I have found this class of men to be possessed of many ideas, which alone explains their employment to such a large extent in our mines.

### ALL METHODS OF MINING FOUND IN ENGLAND, SCOTLAND AND WALES

For our friend's information, allow me to say that, in a single day's travel in any one of the countries named, it is possible to find all the various methods of mining known to the coal industry. These different methods are employed according to the varying conditions that exist in the mines.

In England, can be found the room-and-pillar; pillar-and-stall; longwall advancing and retreating; and square work. At times, different systems will be used in the same district, according to the varying conditions that may prevail in that locality. In Wales, there is to be found the longwall method, both advancing and retreating; single and double stalls; and the panel system. The same can be said of the mines in Scotland.

Now, if I was going to adopt a new method of working my first step would be to employ a man who had had experience in that kind of work, without regard to his nationality. Having found such a man, I would give him charge of the work underground and leave him to map out his own plans, in accordance with his experience.

Expressing a preference for the longwall-advancing system of mining, our friend states that he has advocated its adoption for several years, but was never given the opportunity to put it in practice. Is that not because he failed to get his ideas across to the other fellow?

Coal companies are looking for men who can produce the goods; or, in other words, mine coal at a lower cost and with less waste in the mining. In respect to economy here and in the old country, my opinion is that where 65 per cent of extraction is realized in most of our mines here, the majority of the mines in the United Kingdom will show 90 per cent or more of extraction.

Allow me to suggest one or two reasons why there is lack of economy in American mining. One great reason is the failure to operate the mines continuously throughout the year. Mines that are run two-thirds of the time carry the same overhead charges as though they were operated full time. Longwall work, in particular, requires continuous operation of the mine to make the work successful. When working longwall, the coal face must be advanced regularly, in order to avoid an undue pressure on the coal.

Another reason for poor economy is the large waste of coal in mining. This coal is lost beyond recovery, by reason of poor mine management or on account of employing a wrong method of extraction. Too often, the pillars left for the support of the roof, in the first working, are too small and cannot be drawn back safely or economically.

As a rule, much saving can be effected by proper timbering. In my opinion, it would be cheaper in the end to build concrete arches or sidewalls, with steel I-beams to support the roof, on all main haulage roads. The first cost of this work would be offset by the reduction in upkeep of the road, and avoiding delays and wrecks caused by roof falls on these entries.

Finally, while there are many ways in which we may economize in the mining of coal, probably the one that would count for the most is maintaining a steady market for the output of the mine. A steady market would insure continuous operation and reduce the cost of production more than is now realized.

GEORGE BOWKER.
West Frankfort, Ill.

# Inquiries Of General Interest

## Gas Given Off by Electric Storage Battery

### Principle of Electrolysis of Water—Gases Produced by Dissociation of Water Absorbed by Electrodes—In the Last Stage of Charge Some Gas Given Off

AT A recent meeting of our Mining Extension Class, a question came up regarding the gas given off by the storage battery of an Edison mine cap lamp. There was considerable doubt expressed in regard to whether the battery gave off any gas, after it was completely assembled and in use in the mine.

It was stated, as is well known, that hydrogen gas is given off by a storage battery at the time of charging the battery; but it was generally thought that when a battery has been completely charged and is in use there is no longer any danger to be expected from that source, as the production of gases would cease with the charging of the battery.

We shall very much appreciate having this matter fully explained in *Coal Age*.

STUDENT.
———, W. Va.

Desiring to obtain first-hand information on this point, the question was submitted to the Edison Storage Battery Co., Orange, N. J., and the following reply was received from R. C. Mitchell, sales engineer for the company:

In any electrolytic couple wherein two electrodes and an electrolyte are used, gases are given freely off during the period of passing current. An illustration of this would be the familiar electrolysis of water, as conducted in the laboratories of various Preparatory Schools, in the first year of physics.

In the electrolysis of water, both hydrogen and oxygen are given off. In the case of blank electrodes, these gases are given off in the proportions indicated by the formula for water ($H_2O$); and the amount is proportional to size of electrodes and current rate.

In a secondary or storage battery of any type or kind, the principle of the electrolysis of water is made use of to obtain a chemical reaction, which on reversal will again react in the opposite direction and produce an electric current. In any storage cell, therefore, as the charge progresses the hydrogen goes to the negative plate and reduces it to a metallic state, while the oxygen goes to the positive and oxidizes it.

At the first part of charge, nearly all the gas is taken up in the reaction; but, toward the end of charge, the gas though still produced at a constant rate (if a constant current rate has been used), will not enter into perfect combination with the materials because of their advanced state in the chemical reaction. The gases will then have to come off the cell. It is seen, therefore, that toward the end or the completion of charge, gas will come off in an increasing proportion depending on the state of charge.

In the small size of cells used in the Edison mine cap lamp a very minute quantity of gas is given off toward the end of charge. This will run about 65 per cent hydrogen and about 35 per cent oxygen; but the total quantity and rate of production will be exceedingly small, being in the neighborhood of 70 per cent of the theoretical amount of 140 c.c., per watt-hour, at the so-called fully charged point; or, in other words, for the last two hours of an 8-hr. charge. This latter is due to the fact that, at the so-called fully charged point, some of the gas enters into the reaction; and, therefore, the volume escaping from the cell does not equal the amount for dissociation of water.

# Examination Questions Answered

## Examination, Foreman and Assistant Foreman, Sixteenth Anthracite District

*(Hazleton, Pa., April 11-14, 1922)*

QUESTION—*What is carburated hydrogen? What is its symbol and its weight as compared to air of the same temperature and pressure?*

ANSWER—Carburated hydrogen is another name for methane or marsh gas. Its symbol is $CH_4$. The weight of this gas is 0.559 times the weight of the same volume of air, at the same temperature and pressure, that being the specific gravity of the gas referring to air.

QUESTION—*What is firedamp? What is blackdamp and give its symbol? What causes this gas?*

ANSWER—Firedamp, as its name implies, is any inflammable or explosive mixture of gas and air, the mixture being chiefly methane and air.

Blackdamp is a variable mixture of carbon dioxide and air, the oxygen content being depleted by reason of the presence of this gas. Blackdamp being a variable mixture has no chemical symbol. Blackdamp is produced whereever carbon dioxide is generated in quantity and allowed to accumulate in poorly ventilated places and in dip workings in the mine.

QUESTION—*What is the most practicable manner of detecting firedamp in the mine?*

ANSWER—Firedamp is best detected in mine workings by observing its effect on the flame of a safety lamp. The presence of firedamp in the air surrounding the lamp is indicated by a faintly visible non-luminous flame cap in the lamp, which is best observed by lowering the wick flame to a mere glimmer and screening the eye of the observer from the glare of the flame. As the percentage of gas in the firedamp increases, the cap increases in height and eventually the lamp chimney fills with flame. In other words, the lamp "flames." As the mixture reaches the maximum explosive point, slight explosions are liable to occur within the lamp.

QUESTION—*What is a blownout or windy shot?*

ANSWER—A blownout shot is a shot that has blown its tamping from the hole, without breaking down the coal. The force of the explosion is then expended on the air, producing a heavy concussion there of air. In the presence of accumulated dust, this is blown into the air and ignited by the flame of the shot, causing a more or less local explosion of dust.

A windy shot is one where the force of the explosion is partly expended on the air, owing to an overcharge of powder or to crevices existing in the coal, through which the gases find vent. A windy shot is not necessarily a blownout.

QUESTION—*What should be considered in fixing the quantity of air for any particular mine?*

ANSWER—In the first place, the quantity of air in circulation in a mine must be sufficient to comply with the requirements of the state mining law, the quantity being generally specified in cubic feet per minute, per man, and an additional amount for each animal employed in the mine. It frequently happens, however, that this method of determining the required circulation does not afford good ventilation at the working faces. A larger volume of air will often be required, in the mining of thick coal, in order to insure a sufficient velocity to sweep away the gases that accumulate. At other times, in the mining of thin coal, the volume of air required by law would cause too high a velocity at the working face and make the men uncomfortable.

Again, in a large mine generating gas or blackdamp in quantity, the circulation required by law will not be sufficient to dilute and render harmless these gases which contaminate the air. For these reasons, in determining the circulation required in a mine, it is necessary to consider both the velocity of the air sweeping the working faces and its quality in addition to the volume require by law.

QUESTION—*What is the smallest amount of air per minute allowed for each person working in a mine? What is the greatest velocity allowed in a gaseous mine, except in the main inlet or outlet airway?*

ANSWER—The anthracite mine law of Pennsylvania (Art. 10, Sec. 3) requires the circulation of at least 200 cu.ft. of air per minute, for each person employed in the mine; and (Sec. 7) the area of all air passages must be sufficient to allow this volume of air to pass while the velocity of the air current must not exceed 450 ft. per min.

QUESTION—*How is the amount of air determined in any airway?*

ANSWER—Choosing a straight piece of airway of uniform cross-section, its area is first carefully measured. The velocity of the air current is then ascertained from the reading of an anemometer, which is exposed for one or more minutes in different portions of the measured area. The reading of the anemometer gives the velocity of the air current in feet, which must be reduced to feet per minute, by dividing by the number of minutes the instrument is exposed to the current. Finally, the sectional area of the airway, in square feet, multiplied by the velocity of the air, per minute, gives the volume of air passing, in cubic feet per minute.

QUESTION—*When the velocity of a current of air is 300 ft. per min., what quantity of air is passing through a 7 × 7 ft. airway?*

ANSWER—The sectional area of this airway is $7 \times 7 = 49$ sq.ft. For an average velocity of 300 ft. per min., the volume of air passing in this airway is $300 \times 49 = 14{,}700$ cu.ft. per min.

QUESTION—*What are the advantages and disadvantages in using electricity for power or other purposes, in mines?*

ANSWER—When a mine is electrically equipped the same power can be used to operate the machines for drilling and cutting the coal, transporting it under ground, lighting the mine and driving electric motors for ventilating and pumping. An electrical installation furnishes a more flexible system of transmitting power underground, than either compressed air or steam.

Electricity cannot be employed with safety in a mine generating dangerous quantities of gas, because of the liability of the gas being ignited by the sparking of wires, blowing out of fuses or short-circuiting of the current, at some point. The presence of high tension wires, in a mine, is always a menace to safety, owing to accidental contact of workmen with the wire.

# The Weather Vane of Industry

## News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

INCREASED production, more stable prices, and larger export trade are the principal features shown by figures received during the last ten days of April by the Department of Commerce for its "Survey of Current Business."

"From the figures available in recent months," the report states, "it is clear that fundamental conditions are much better and there is every reason to expect business to improve steadily, although perhaps slowly.

"Imports of unmanufactured wool in March showed a large increase over recent months: The total, amounting to 43,071,000 lb., is by far the largest since April, 1921, i.e., during the period of the emergency tariff. Receipts of wool at Boston were also larger than in February, due to the increase in foreign wool. Receipts of domestic wool, amounting to 10,899,000 lb., were less than in February but were exceptionally heavy for this time of the year.

"The percentage of active wool machinery hours increased in March for carpet and rug looms, cards and woolen spindles. Other groups of machines decreased slightly in activity but, with the exception of combs and worsted spindles, all showed a large gain over March of last year.

"In agreement with other phases of the iron and steel industry, there was a distinct improvement in the March export trade. Total exports increased 55 per cent over February and were the largest since March last year. Imports also increased 2,000 tons, with a total of 14,000 tons, the largest amount imported in one month since January, 1921.

"With a total of 80,853,000 lb., copper exports showed a marked gain over recent months and registered the largest total for any month in nearly two years.

"The trade reports indicating increased operation of the automobile factories is confirmed in the total figures now made available. The March production totals, 152,920 passenger cars, compared with 109,121 in February. The March output is not quite as large as that reported for last July and August, but exceeds the output of any intervening month. Truck production totaled 19,422, or nearly 5,000 more than the February output. The March production is by far the largest in any of the nine months for which figures are available.

"The petroleum industry set new high records in March in all directions. The production of crude totaled 46,916,000 barrels, compared with the previous record output last January of 43,141,000 barrels.

"A marked increase occurred in the production of newsprint paper. The March total was 117,507 tons, the largest since January, 1921. Shipments were slightly less than production, with a consequent small increase in stocks.

The production and shipments of lumber, brick, cement and other building materials increased in March in response to the greater volume of construction. The marked increase in the movement of enamel sanitary ware is indicative of the increase in building.

"Exports of wheat, including flour, increased over February, with a total of 14,371,000 bushels. Since the beginning of the crop year we have exported the equivalent of 236,672,000 bushels of wheat.

"Wholesale price-index numbers indicate a slight rise over the condition in February. On the whole, prices seem to be stabilized for the present at an average of about 50 per cent above the pre-war level. Retail prices, on the other hand, continue to decline. The index of the cost of living, compiled by the National Industrial Conference Board, showed a drop of three points in the total during March."

### Federal Reserve Report Favorable

In analyzing the business situation as of May 1, the Federal Reserve Board says that reports received by the U. S. Employment Service for the period ending March 31 showed an increase of 2.5 per cent in numbers employed as compared with the preceding month.

District No. 1 (Boston) reports that notwithstanding the continuance of the textile strike, the "actual amount of unemployment in the cotton manufacturing industry is probably no larger than at the beginning of April." In the centers of manufacture for metal goods, machinery and tools such as Waterbury, Worcester, Providence and New Haven, there has been a steady upward movement in numbers employed.

In New York State there was an increase of 1.3 per cent in numbers employed in industrial establishments between Feb. 15 and March 15, according to the reports received from the New York State Department of Labor. In District No. 3 (Philadelphia), excluding 200,000 striking miners, employment conditions also showed continued improvement between March 15 and April 15.

The special inquiry regularly made into employment conditions in District No. 7 (Chicago) shows that 220 firms employing 117,983 persons at the end of March had on their payrolls 3.5 per cent more employees than at the end of the preceding month, and practically the same number as a year ago, the decrease amounting to only 0.1 per cent.

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### Idle Cars Up 70,967 in Week

Idle cars for the week ended April 15 totaled 491,513, an increase of 70,967 compared with the 420,546 idle cars reported on April 8. Of these 333,393 were surplus freight cars. Surplus coal cars totaled 187,918, an increase in a week of 65,559, while an increase of 613 was reported for coke cars, the total surplus being 2,842.

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### Brass Company Raises Wages

Notices have been posted in the shop of the Ansonia Manufacturing Co., Ansonia, Conn., announcing a 15 per cent wage increase, to go into effect May 15. The company manufactures brass goods. Between 500 and 600 employees are affected. The company cut wages about a year ago, promising at the time to raise them as soon as conditions justified.

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### 400 Steel Men Get Work

The Bethlehem Steel Co. has started another finishing mill at its plant at Lebanon, Pa., giving employment to 400 men.

## More Mine Fatalities in March, but Ratio To Output Is Lower Than Last Year

ACCIDENTS at coal mines in March, 1922, caused the deaths of 187 men as compared with 137 during the same month last year, an increase of 36 per cent, according to reports received by the Bureau of Mines from all state mine inspectors. The fatality rate, based upon an estimated production of 58,950.000 tons, was 3.17 per million tons mined, as against 3.62 for March last year, when the output was 37,798,000 tons.

During the past nine years (1913-1921) the month of March has averaged 201 fatalities, with an average production of 48,039,000 tons, indicating a fatality rate of 4.18 per million tons mined. It will thus be seen that the rate for March, 1922, represents an improvement of nearly 25 per cent.

On March 24 an explosion of gas and dust, supposedly caused by an electric arc, resulted in the death of 17 men at the Sopris mine, Sopris, Col. In this connection attention should be called to the increase in the number of explosions in the first quarter of the present year. There have thus far been five major disasters with a loss of 66 lives, as compared with five similar disasters and a loss of 34 lives during the whole of 1921. Unless greater care is exercised by all persons concerned, the record at the close of 1922 will not be an enviable one as regards large disasters.

During the first quarter of the current year 566 men have been killed at coal mines, as compared with 494 during the corresponding quarter last year, an increase of 72 fatalities, or more than 14 per cent. The output of coal for the same periods was 150,923,000 tons and 124,030,000 tons, respectively, an increase in 1922 of about 22 per cent. The increased production has resulted in a decline in the fatality rate per million tons mined from 3.98 in 1921 to 3.75 in 1922.

If the causes of the fatalities during the three months, January to March, be considered in relation to production of coal, the reports show a decrease in the per-million-tons fatality rates for nearly all of the main causes of accidents. A conspicuous exception to this statement is in explosions of gas and dust, for which the fatality rate per million tons has increased 173 per cent over the first three months a year ago and 156 per cent over the rate for the entire year 1921. These increases occurred in explosions caused by shots and those caused by electric arc.

When the general strike now in progress is terminated and coal-mining operations are resumed, special caution should be exercised by miners and operators to avoid an increase in accidents due to lessened morale and an interruption to normal safety measures and training.

## Freight Car Loadings Fall 7,555; Coal Movement 6,595 Cars Less

LOADINGS of revenue freight totaled 706,713 cars during the week ended April 15, compared with 714,268 during the previous week, or a decrease of 7,555. This was, however, an increase of 4,597 over the corresponding week in 1921 and 105,018 in excess of the corresponding week in 1920, when, however, the unauthorized strike of switchmen seriously affected transportation.

Coal loadings totaled 62,851 cars during the week of April 15. This was 6,595 less than the total for the preceding week, 71,195 less than for the corresponding week last year and 73,035 under the corresponding week two years ago. Tabulations showed 8,072 cars loaded with coke, a decrease of 527 compared with the preceding week but 3,686 in excess of the same week last year and 1,291 above the same week in 1920.

THE SENATE COMMITTEE ON JUDICIARY has appointed a subcommittee consisting of Senators Cummins, of Iowa; Nelson, of Minnesota, and Walsh, of Montana, to give hearings and report on the bill of Senator Edge, of New Jersey, defining the status of trade associations and placing them under jurisdiction of the Federal Trade Commission.

COAL-MINE FATALITIES DURING MARCH, 1922, BY CAUSES AND STATES

(Compiled by Bureau of Mines and Published by *Coal Age*)

| State | Underground | | | | | | | | | | | | | Shaft | | | | | Surface | | | | | | | Total by States | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Falls of roof (coal, rock, etc.). | Falls of face or pillar coal. | Mine cars and locomotives. | Gas explosions and burning gas. | Coal-dust explosions (including gas and dust combined). | Explosives. | Suffocation from mine gases. | Electricity. | Animals. | Mining machines. | Mine fires (burned, suffocated, etc.). | Other causes. | Total. | Falling down shafts or slopes. | Objects falling down shafts or slopes. | Cage, skip, or bucket. | Other causes. | Total. | Mine cars and mine locomotives. | Electricity. | Machinery. | Boiler explosions or bursting steam pipes. | Railway cars and locomotives. | Other causes. | Total | 1922 | 1921 |
| Alabama | 5 | | 2 | | | | | | | | | | 7 | | | | | | | | | | | | | 7 | 9 |
| Alaska | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| Arkansas | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| Colorado | 3 | 2 | | | 17 | | | | | | | | 22 | | | | | | | 1 | | | | | 1 | 23 | 4 |
| Illinois | 5 | | 4 | | 1 | | | 1 | | | | | 11 | | | | | | | | | | 1 | | 1 | 12 | 12 |
| Indiana | 2 | | 2 | | | | | | | | | | 4 | | | | | | | | | | | | | 4 | 2 |
| Iowa | 1 | | 1 | | | | | | | | | | 2 | 1 | | | 1 | 1 | | | | | | | | 3 | 0 |
| Kansas | 1 | | | | | | | | | | | | 1 | | | | | | | | | | | | | 1 | 2 |
| Kentucky | 2 | | 3 | | | | | 1 | | | | | 6 | | | | | | | | | | 1 | | 1 | 7 | 9 |
| Maryland | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| Michigan | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| Missouri | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| Montana | 1 | | | | | | | | | | | | 1 | | | | | | | | | | | | | 1 | 3 |
| New Mexico | 1 | | | | | | | 1 | | | | | 2 | | | | | | | | | | | | | 2 | 2 |
| North Dakota | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 1 |
| Ohio | 10 | | | | | | | | | | | | 10 | | | | | | | | | | | | | 10 | 11 |
| Oklahoma | 1 | | | | | | | | | | | | 1 | | | | | | | | | | | | | 1 | 0 |
| Pennsylvania (bituminous) | 9 | 4 | 5 | 5 | | | | | | 2 | | | 25 | | | 1 | | 1 | | | | | | | | 26 | 11 |
| South Dakota | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| Tennessee | 1 | | 1 | | | | | | | | | | 2 | | | | | | | | | | | | | 2 | 0 |
| Texas | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| Utah | 1 | 1 | | | | 1 | | | | | | | 3 | | | | | | | | | | | | | 3 | 1 |
| Virginia | 1 | | 1 | | | | | | | | | | 2 | | | | | | | | | | | | | 2 | 3 |
| Washington | | | 1 | | | | | | | | | | 1 | | | | | | | | | | 1 | 1 | 2 | 2 | 0 |
| West Virginia | 14 | 3 | 7 | | | 2 | | 2 | | 1 | | | 29 | | | | | | 1 | | | | 2 | 3 | 32 | 17 |
| Wyoming | | | | | | 1 | | | | | | 1 | 2 | | | | | | | | | | | | | 2 | 1 |
| Total (bituminous) | 58 | 10 | 27 | 5 | 18 | 4 | | 5 | | 3 | | 1 | 131 | 1 | | 1 | | 2 | 1 | 1 | | | 2 | 3 | 7 | 140 | 88 |
| Pennsylvania (anthracite) | 18 | 3 | 8 | 5 | | 6 | | | | | | 1 | 41 | 1 | | | | 1 | | | 3 | | 1 | 1 | 5 | 47 | 49 |
| Total, March, 1922 | 76 | 13 | 35 | 10 | 18 | 10 | | 5 | | 3 | | 2 | 172 | 2 | | 1 | | 3 | 1 | 1 | 3 | | 3 | 4 | 12 | 187 | |
| Total, March, 1921 | 56 | 6 | 25 | 8 | | 12 | 2 | 7 | 2 | 1 | | 3 | 122 | 2 | | 1 | | 3 | 2 | 1 | 3 | | 1 | 5 | 12 | | 137 |

## Says Ordinary Buyer's Coal Bill Chiefly Represents Transportation Charges

J. D. A. MORROW, vice-president of the National Coal Association, told the members of the Academy of Political Science, in New York City, on April 27, that since bituminous coal prices are determined by competition in the open market the individual operator, or a group of operators, is no more able to arrange in advance a schedule of prices month by month throughout the year than a grower of hogs in Indiana can determine in advance the price at which he will sell his hogs in different months.

Following out the same argument Mr. Morrow said it has been found possible for distributors of anthracite to put arrangements of this character into effect, but they are dealing with a commodity which can be stored readily and of which the production is limited, so that methods of marketing the output can be applied there which are wholly impracticable in the case of bituminous coal.

Transportation charges figured largely in the addresses and discussions of the meeting, which had been called to discuss railroads and business prosperity. Mr. Morrow's subject was "The Transportation Factor in the Price of Coal." He told his hearers that when the ordinary consumer pays his coal bill he thinks he has paid for his coal when as a matter of fact what he has chiefly bought and paid for is transportation service from the coal seam to his furnace room.

The proposal that coal producers store a part of their output at the mines in summer and thus render the operation of their properties more stable and regular has the defect of being impractical, Mr. Morrow said, since production, transportation and distribution of coal is effected at the most economical cost when that movement is uninterrupted. There also is a certain degradation and deterioration of coal in storage, so that it would have to be sold by the producer who has stored it at a higher price than his freshly mined coal, if he is to avoid a loss.

W. N. Doak, vice-president of the Brotherhood of Railway Trainmen, who spoke on labor policies from the viewpoint of the railway employees, suggested as a proper solution of railroad labor disputes the re-establishment of the Board of Mediation and Conciliation, with the right to bring about, if possible, voluntary arbitration; establishment of bi-partisan boards of adjustment on which the railroads and the employees are equally represented; re-establishment of the rights of the respective parties to adjust any disputes by mediation, conciliation or voluntary arbitration if possible, before reference to any board; maintenance, if necessary, of a board to act as referee, which for the time being, until otherwise changed, would be the U. S. Railroad Labor Board, this board to be applied to only in case of deadlock by bi-partisan boards or in case of failure to adjust any dispute through mediation, conciliation or arbitration; establishment of a system or plan by which exact facts concerning wages, grievances and conditions of employment may be accurately obtained in a fair and impartial manner; prohibition by law or otherwise of the circulation of propaganda concerning railroad disputes, which has a tendency to alarm or inflame the public mind.

Henry C. Wallace, Secretary of Agriculture, said that either freight rates on agricultural products and on the principal commodities the farmers need to buy must come down quickly to about pre-war levels, or prices on agricultural products must increase sufficiently to equal the increasing freight rates, or there will be profound readjustments in agricultural production and these will involve readjustments in industry as well.

Daniel Willard, president of the Baltimore & Ohio Railroad Co., said that whatever policy of ownership, control or operation may be adopted with reference to American railroads it must make satisfactory provision so that in times of emergency it will be possible to mobilize and coordinate promptly all of the physical properties of all companies in order that the railroads as a whole may be used in the most effective manner possible.

Walker D. Hines, former Director General of Railroads; Charles R. Hook, vice-president and general manager, American Rolling Mill Co., of Middletown, Ohio; William J. Cunningham, of Harvard University, and R. H. Aishton, president of the American Railway Association, were other speakers.

## British Engineering Situation Parallels Labor Conditions in Coal Industry

THERE is a distinct parallel between the developments which have culminated in the engineering trade stoppage and the situation recently created in Great Britain by the controversy over Part II of the Mining Industry Act. The conditions prevailing in the two great industries are, of course, entirely different, and the respective sets of circumstances which brought matters to a head are in no sense analogous, but the basic principle involved is the same in both cases: Whether or not the employers are to retain their legitimate right to exercise the functions of organization and management free from the continual interference of those men who claim to speak for the workers.

The defunct Part II of the Mining Industry Act was an innocuously worded measure, but its potential dangers were apparent to every owner and manager of experience. If skilfully employed, it would have proved a veritable charter of liberty to the extremists and political opportunists of the miners' unions.

The conditions that would emerge if the small minority constituting the dissenting balloted members of the Amalgamated Engineers' Union had their way represent a big advance on the abandoned proposals of Part II, and are such that, if applied to the mines, would render colliery operations dangerous in the extreme, or, indeed, impossible, as no manager would dare undertake the responsibilities for safety for which he is liable under the various acts of Parliament.

Effective control cannot be shared by colliery managements with any other party or parties if mining properties are to be safely and efficiently worked. This is equally true of the engineering trades, where a system which virtually amounts to dual control, imposed upon the employers by the shop stewards and works committees, has made it impossible for the former to keep their establishments open.

Under no economic system is it practicable for the responsible organizers and managers of a business concern to carry on when their instructions on essential matters are constantly challenged and frequently ignored or reversed by their workmen's representatives. Such vexatious interference is bound to upset costing and the other factors which necessarily enter into every contract, and is calculated to transform what would have been a profitable transaction into a losing venture.

There, too, is the question of the engineering employers sanctioning a state of affairs by which a precedent of the most dangerous kind would be established, one that might eventually involve every other great industry of the nation. The usurpation of the employer's legitimate and necessary rights by trade unions, acting under the pressure of extremists, is a development along lines which economic laws do not recognize. It is the thin edge of the wedge of industrial anarchy.

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IN COAL AGE of April 27, on page 704, there was published a statement from the Pennsylvania State Employment Bureau respecting the number of coal miners on strike in that state. It is obvious that these figures cannot be correct, for it is stated that 194,698 bituminous coal miners are out, whereas there are only about 175,000 bituminous coal mine workers in that state. The statement also says that the number of anthracite mine workers idle in that state is 95,000. There are approximately 145,000 men in the anthracite industry and they are all on strike.

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DISCUSSING THE COST OF LIVING, Secretary of Agriculture Wallace says that of the average family budget 5.6 per cent is expended for fuel and light and that fuel and light advanced 77 per cent from July, 1914, to March, 1922.

## More Illinois Mines Install Improvements During the Strike

IT IS evident that a good many Midwestern mining companies are looking into the future with confidence and are preparing now for next year's business. The O'Gara Coal Co., is spending more than $50,000 on a new office building in Harrisburg, Ill., and a new concrete building over its remodeled preparation plant at No. 1 mine. The Harrisburg building will be two stories high and of mill construction to house various of the operating departments of the company. In the expanded preparation plant at the mine will be installed new shaker screens and loaders and one additional loading track under the tipple.

The J. K. Dering Coal Co., of Chicago, is spending approximately $50,000 to extend its power system at its No. 6 mine so as to bring the plant to a point of development at which there will be no production delays chargeable to insufficient power. The Bell & Zoller Coal Co., also of Chicago, is installing a 300-kw. generator set deep in the workings of the Zeigler No. 1 mine, at Zeigler, Ill. This is but one of the units in the mine that serve to maintain voltage at the working faces in spite of their distance from the power plant.

## Coal Consumed by Railroads in February

CONSUMPTION of coal in road service by Class 1 railroads during February approximated 8,546,918 net tons, according to data compiled by the Bureau of Statistics of the Interstate Commerce Commission from 164 reports of freight statistics representing 180 roads and from 161 reports of passenger statistics representing 177 roads. During the corresponding month of 1921 the fuel consumed equalled 8,377,348 tons of coal. These figures include an equivalent coal tonnage for fuel oil consumed.

For the two months ended with February these roads consumed 17,459,166 tons compared with 18,489,812 tons in 1921, a decrease of 1,030,646 tons. The revenue and non-revenue freight ton-miles increased from 54,733,000,000 in 1921 to 55,441,000,000 this year and passenger-train car-miles decreased from 558,206,000 to 531,034,000.

## Says Trade Associations Can Be of Real Service Without Violating Law

TRADE associations among coal men—associations serving for the general advancement of the trade and not as labor-handling organizations—can perform a real service in the future, according to W. K. Kavanaugh, president of Southern Coal, Coke & Mining Co., of St. Louis, Mo., which operates six Illinois mines. The Supreme Court's decision against a lumbermen's trade association in the Hardwood case does not kill "good" associations but merely upholds the anti-trust law, Mr. Kavanaugh believes, and does not make it illegal for associations to report on past transactions. The Hoover-Daugherty correspondence on the subject of "What can trade associations do legally?" seems, to Mr. Kavanaugh, to indicate for associations many proper activities that are valuable to members. He thinks that coal operators, in any future plan of co-operation between the government and coal-trade associations, should willingly furnish general information. This should not be required by law but should be accepted as the voluntary offering of associations.

"The individual coal-trade associations, children of necessity, have grown up to meet the requirements of industrial conditions," said Mr. Kavanaugh. "Many of these associations have been brought into being at government suggestion. Their right to exist, like the individual, is evidently unquestioned unless through their behavior they have forfeited such right.

"There seems to be a tendency on the part of many to consider that the decision in the Hardwood lumber case has been adverse to all association activities, precludes the making of market reports and has in fact denied to associations the right of existence. This attitude on the part of those interested in the associations' welfare seems unfortunate since, I believe—and this belief is supported by the opinion of counsel—that the Hardwood lumber case in reality merely upholds the Sherman anti-trust law, which prohibits conspiracy to enhance prices, the fixing of prices, division of territory or restriction of production through agreement. The court found that the association in question had, through certain means, violated the above statutes and forfeited its right of existence. I do not consider that the court intended to make such forfeiture on the part of the associations not guilty under the statute and I do not read into the decision therein a finding that the making of a report covering past transactions is illegal.

"The set of questions propounded by Secretary of Commerce Hoover in his correspondence with Attorney General Daugherty [printed in *Coal Age*, Feb. 16, 1922, pp. 279-300] will bear considerable study in connection with the text of the so-called anti-trust laws and the decisions of the Supreme Court thereunder by the officers and members of trade associations with a view to determining activities best suited to the needs of the membership of any given association. A careful reading of these questions and the Attorney General's reply cannot fail to leave the conviction that there are many proper activities open to trade associations. . . .

"The officers and employees of a trade association should, like any employee of a company, be active for the betterment of the industry with which they are connected. This does not mean that the officers of a trade association should violate the law because some individual might want them to, but it does mean that they should, through knowledge of the law and situations involved, prevail upon the individual members of the association *not to violate the law* should they be tempted to do so.

"There appears to be no law prohibiting the exchange of information based on past transactions so long as this information is compiled and made accessible to the public and so long as this compilation is not made the basis of agreements for restriction of output or the fixing or the maintaining of prices.

"There should be no hesitancy on the part of the individual citizen to make available to properly authorized government officials general information surrounding the operation of his business, neither should there be hesitancy on the part of a group of individuals in association.

"It is doubtful whether the best interests of the public are served by providing by law that certain specific information shall be developed and furnished to the government. It is doubtful whether the government, by categorically fixing a 'straight and narrow way' through which business may proceed, can arrive at cheapness and efficiency of operation and consequent reduction of cost to the consuming public. The government should be in position to accept, compile and distribute publicly statistics which could be voluntarily submitted without expense to the government, by the various trade associations. The government should be permitted, at its option, to check these statements submitted by the various associations as a means of assurance of their accuracy."

## No Coal Famine in Kansas, Court Learns

A CANVASS of the coal situation in Kansas made by the Kansas Court of Industrial Relations shows that there is no demand, every sizable consumer, including railroads, is stocked, and that 350 cars, most of them filled with lump, stand unbilled at mines. A total of 123 co-operative mines, employing 807 men, are now working part time. They can produce 2,000 tons a day.

IN A REPORT recommending standardization of freight cars and central control of distribution of all classes of freight cars, the Agricultural Commission of the House and Senate says the supply of coal cars is inadequate to meet the demand during normal periods of activity and should be rapidly augmented.

## Reports of Central Pennsylvania Mine Workers' Earnings at Variance

THERE appears to be some dispute over what the miners in central Pennsylvania earned in 1921. The following statement by John Brophy, district president of the United Mine Workers in central Pennsylvania, was introduced in the record of the Labor Committee of the House in one of its recent hearings. There also follows a letter from the president of the Central Coal Association to Secretary Davis, taking exception to Mr. Brophy's statistics. Here is Mr. Brophy's statement:

"The average earnings of 31,979 miners in central Pennsylvania for 1921 were $14.60 a week. The average net income per miner was $760 for the year. This afforded the miner, for the 365 days that he had to keep his family alive, $2.08 per day. This is from an exact tabulation of 364 mines, which covers all but a tiny fraction of the miners in District No. 2 of the U. M. W of A. District No. 2 comprises all the organized soft-coal miners in fourteen counties in central Pennsylvania. In these same 364 mines are also employed about 12,000 day men. To estimate the day men's average earnings will require fuller analysis of the data, but a preliminary calculation indicates that their earnings will run slightly higher, they may have averaged $17.50 a week, or an income giving them as high as $2.50 a day for the support of their families for the year. The data also indicate that the 364 mines averaged 122 days' work for the year, or 2½ days of work a week.

"This is a tabulation of wages based upon exact figures of production tonnage for the entire district. The tabulation was a month's work. District No. 2 is the only district which pays the checkweighman (union employees who check the company's weighing of the tonnage produced) at all mines out of a central fund. This system requires every checkweighman to file a report at the Miners' Building at Clearfield, Pa., every fortnight. Each report gives for each mine the exact tonnage for the fortnight, the number of days the mine operated, the number of miners and the number of day men.

"Each report is signed by four officers of the local union. Each of the 364 checkweighmen made 26 reports in 1921, a total of 9,464 reports in the tabulation.

"The results were: 31,979 miners worked in the 364 mines. They mined: 6,282,905 gross tons, pick mined, for which they were paid $1.2803 a ton; 2,953,559 net tons, pick mined, paid at the rate of $1.1431 a ton; 7,253,303 gross tons, machine mined, at $0.8656 a ton; 7,460,862 net tons, machine mined, at $0.7729 a ton.

"This total tonnage, 25,574,974 (net tons), constitutes nearly 7 per cent of the tonnage of the whole country. Allowing for a portion of the tonnage mined at a rate 10c. higher than the above scales and estimating the amount paid for car pushing (at the rate of 6c. a ton) as actually applying to half the total tonnage, the tabulation gives the following earnings by territories and totals:

WAGES RECEIVED BY BITUMINOUS COAL MINERS IN 1921—DISTRICT NO. 2, CENTRAL PENNSYLVANIA

| Ter. No. | Net Tons Pick Mined | Net Tons Machine Mined | Wages Received | No. of Miners | Average Wage Yearly | Average Wage Weekly | No. Days Worked |
|---|---|---|---|---|---|---|---|
| 1 | 1,819,432 | 2,820,773 | $4,399,174 | 5,105 | $862 | $16.58 | 123 |
| 2 | 719,216 | 938,761 | 1,597,443 | 2,466 | 652 | 12.55 | -98 |
| 3 | 3,697,343 | 2,758,937 | 6,552,504 | 6,224 | 1,052 | 20.45 | 163 |
| 4 | 665,800 | 61,062 | 902,763 | 1,612 | 560 | 10.77 | 91 |
| 5 | 755,569 | 2,140,609 | 2,605,053 | 3,115 | 836 | 16.06 | 137 |
| 6 | 545,572 | 3,083,731 | 3,115,938 | 4,256 | 732 | 14.08 | 95 |
| 7 | 757,261 | 528,646 | 1,312,792 | 2,122 | 618 | 11.89 | 95 |
| 8 | 642,864 | 3,180,217 | 3,307,541 | 6,204 | 532 | 10.24 | 117 |
| 9 | 387,356 | 71,825 | 512,076 | 875 | 586 | 11.27 | 188(?) |
| Total | 9,990,413 | 15,584,561 | $24,305,284 | 31,979 | 760 | $14.60 | 122 |

"The flat average annual income was obtained by dividing the total of wages paid to the miners by the total number of miners, 31,979, giving $760 for the year, or $14.60 per week. The only other source of income the miner has is the irregular sums paid for dead work or yardage, not large in this district but an item. Out of his total earnings the miner must pay for his supplies, through the company's check-off—powder, picks, blacksmithing and other mine supplies. This cost to the miner is very conservatively estimated at 5c. a ton. It may be considered in total as more than canceling the total earnings from yardage.

"Day men are paid at the rate of $7.50 for inside labor and $6.92 or less for outside. If the day men worked every day that the mines worked, the day men's average earnings would run from $50 to $915 per year, but no exact calculation is possible such as the tabulation made for the 31,979 miners. The average number of days, 122, which the mines worked in central Pennsylvania seems to be about the same as in other large districts. Operators' figures for Illinois, for example, give 126 days for the Illinois mines in 1921."

The letter from G. Webb Shillingford, president of the Central Coal Association, April 25, 1922, to James J. Davis, Secretary of Labor, follows:

"We notice in the press a letter from John Brophy, president of District No. 2, United Mine Workers of America, addressed to you, in which he states: 'The miners of central Pennsylvania protest respectfully but vigorously against the 2-per cent statistics of the miners' wages issued under authority of the Department of Labor'; also stating that your estimated average of $1,357 earnings for bituminous miners of the country for 1921 is wrong.

"For your information, the Central Coal Association has made an investigation of the earnings of all employees in central Pennsylvania [*Coal Age*, April 20, page 667], and this shows that the earnings in 1921 for mine employees in central Pennsylvania were $1,319.42 for 138 working days, or at the rate of $9.56 per day, or about $1.20 per hour based upon the eight-hour day.

"In order to show the fallacy of Mr. Brophy's figures, we wish to quote from his own testimony given before the House of Representatives Committee on Labor, Friday, April 7, 1922, in part. The cross-examination in reference to this tabulation of so-called earnings is as follows:

"'Mr. Nolan, Chairman: In reference to the figures that were given here [figures on earnings contained in Mr. Brophy's statement] I have a memorandum stating that the figures quoted do not include day laborers, 35 per cent of the total cost; the amount paid for yardage and deadwork, the amount paid for car pushing, and the amount paid for extra allowances for deficient work.

"'Mr. Brophy: It is correct that the $24,000,000 covers the tonnage mined and the day labor has not been entered into the $24,000,000 to get the total cost. When the question was asked I had in mind that you were referring to the rates paid to the tonnage workers.

"'The Chairman: No; what I had in mind was the total cost to all men connected with the mining of coal. Then this $24,000,000 does not take into consideration the day men?

"'Mr. Brophy: No.

"'The Chairman: And those other men who are mentioned here [in this memorandum]?

"'Mr. Brophy: That is correct.

"'The Chairman: I am glad that is straightened out.

"'Mr. Brophy: Yes.'

"Notwithstanding that Mr. Brophy was forced to admit that these figures were wrong, based upon partial information that did not include 42 per cent of the money paid to the workers in wages, he has the audacity to reiterate to another federal department these same figures.

"I am sending this for your information and in order that you may make proper and, I hope, public reply to Mr. Brophy, as he has published his letter to you in the press."

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## Supreme Court Upholds Packer Control Act

THE right of Congress to regulate industry against monopoly under the commerce clause was sustained by the Supreme Court in a decision rendered by Chief Justice Taft Monday, May 1, in upholding the validity of the packer control act. Justice McReynolds dissented. The packers attacked the act on the ground that it was unconstitutional in that the commerce it regulated was not interstate in character. The court held that in the meat-packing industry there was a continuous current of commerce from the West to the East; that it was a national public utility and that it was affected by a public use of a national character subject to national legislation. The court held that Congress may enact legislation to prevent monopoly the same as it may enact legislation to punish monopoly.

# Fourth Week of the Coal Strike

## EDITORIAL REVIEW

INCREASED production with increased demand and further gains in prices were the outstanding characteristics of the fourth week of the coal strike.

Preliminary estimates placed the production of bituminous coal in the week ended April 29 at 4,150,000 tons. Demand for coal has not as yet really called forth the utmost that the non-union mines now operating can produce. Even in central and southwestern Pennsylvania, where the union has closed many unorganized mines, production is slowly forging ahead.

Production in Pennsylvania and northern West Virginia in the fourth week of the strike had dropped to 75 per cent of that in the first week, but was 20 per cent over the third week. Each day in the fourth week up to and including Friday showed improvement in output.

Because of the confusion and detail of reports from this area—reports of this mine in and that mine out, this mine working with reduced forces and labor moving to other mines—it is not possible to make a definite statement as to whether the union is gaining or losing in its efforts to tie up the non-union fields of Pennsylvania. It seems clear, however, that the speed of its onslaught has been checked and perhaps it now is losing as much each day as it gains. The increase in production from this territory is doubtless largely due to the stronger demand, which is now sufficient to call forth the available non-union output in the Pennsylvania fields.

South of the Ohio and Potomac rivers production has been gaining steadily. Coal fields in eastern Kentucky, southern West Virginia, Virginia, Tennessee and Alabama by the middle of the fourth week of the strike were turning out 40 per cent more coal than a year ago or than in the first week of the strike. These fields have suffered no setbacks and so far have met each demand for tonnage that the country has made.

### Consumption Twice as Large as Production

The Geological Survey estimates that bituminous coal stocks are being used up at the rate of 4,000,000 tons a week; the coal bureau of the U. S. Chamber of Commerce thinks 4,600,000 tons a week. At any rate about twice as much coal is being consumed as is being produced at the present time, and some of these days the country will begin scraping out the corners of its coal bin. There is still more than a million tons of unconsigned bituminous coal held on tracks at the mines. This, of course, is less than one day's consumption. In every quarter it seems to be accepted that there will be no active steps taken looking toward settlement of the controversy and resumption of work at the mines so long as there is so much coal above ground throughout the country.

Even with stocks as huge as they are, even after four weeks of the strike, there are numerous instances of consumers with little or no coal on hand. They are in the market for coal. Some others, without large stocks, are becoming a little anxious. Altogether the effect has been to advance the market week by week. Each price advance has been met with a flood of offers of non-union coal, particularly from the South. Temporary freight rates have been approved by the Interstate Commerce Commission to bring this coal into the markets of the North.

A few operators in southeastern Kentucky have signed an open-shop agreement with their miners providing for a scale based on the 1917 rate, the agreement being subject to revision on the basis of whatever may be determined in the Central Competitive Field. Many mines are working without any agreement whatever and in a good many instances union charters have been surrendered.

About 15 of the larger mines in Harlan and Bell counties are not operating at present. The union claims to have tied them up, but the operators assert that they are simply waiting for a profitable price before reopening. Much labor is drifting into the field from Alabama, Tennessee and the North, and production is increasing daily. The general market tendency is up and operators are without question improving their position against the union each day.

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## *Chamber of Commerce Sees Coal Shortage Early in June at Present Rate of Output*

THE Coal Bureau of the Chamber of Commerce of the United States, in a published statement on May 1, calls attention to the unusual condition found in the general lack of demand for coal supplies that exists throughout the country. At the present rate of production and consumption there is no danger of any general shortage, says the bureau, for at least six weeks. Summing up the situation as of April 22 the Coal Bureau says:

"On April 1 the stock of coal in the hands of railroads, industrial consumers, public utilities and retailers was approximately 63,000,000 net tons. Adding to this 4,250,000 tons estimated at the Upper Lake docks and the unbilled coal on hand April 1, there was a total of 68,650,000 net tons above ground April 1. Stocks cannot drop below 20,000,000 tons without danger of a coal panic. The quantity of coal which apparently can be drawn from stocks before a serious situation develops is 48,650,000 tons. To this supply there will be continuously added the output from the non-union fields, which up to date has averaged about 3,500,000 tons per week. At the present time the average weekly consumption is estimated at 8,100,00 tons. Therefore, supply from the non-union fields is falling short of meeting the consumption by 4,600,000 tons per week. To cover this deficit we have the 48,650,000 tons in storage. If the consumer continues to draw from this storage at the rate of 4,600,000 tons per week, unless there is an increase in production from the non-union fields, a shortage will be felt in approximately seven weeks from April 22, or until early in June.

"The above are average figures covering the entire producing and consuming areas, and rest on an even division of product and uniform storage capacity and uniform stocks on hand throughout the country. In reality, however, such uniform conditions do not exist in the different communities. If the strike continues, the ordinary lines of distribution are likely to be disarranged and result in great variation in the ability of the different communities to secure needed supplies."

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## *Anthracite Operators and Miners Discuss Minor Demands of Workers*

THREE sessions of the joint subcommittee negotiating the anthracite wage agreement held last week in New York City were devoted mainly to a discussion of the minor demands of the miners, no reference being made to the major demand for a 20-per cent wage increase. John L. Lewis, International president of the union, returned to the city on April 28 and it was expected that he would endeavor to speed up the negotiations.

The week's conferences did not resume until April 26, one day later than scheduled, but this was accounted for by the announcement that the operators were preparing their arguments to the miners' demands. On April 26 the session was devoted to a discussion of the demand of the miners for an eight-hour day, the operators inquiring particularly as to the views of the mine workers upon this demand covering the inside workers. There also was a general discussion of the result of the shorter work day in the mines of England.

At the next day's session the demand of the mine workers for a restoration of the differentials that existed in cents per day prior to the last agreement was considered.

The miners, it was announced, took the position that the fixing of a $4.20 minimum by the last commission destroyed many of the differentials that had been paid to occupations requiring more skill than common labor and that it was important that these differentials be restored. There also was a general discussion of the wage question and the cost of living.

Following the session on April 27 S. D. Warriner, for the operators, said that 47,000 workmen in the industry last year received an average of $1,803.55 each. The average earning of contract men was $2,170.40 and the lowest average annual wage was $1,439 earned by outside day men.

## *House Labor Committee Said to Be Favorable to Bland Fact-Finding Bill*

PROPOSED federal coal legislation probably will be considered next on the floor of the House. The House Committee on Labor has concluded hearings on the bills of Representative Bland, of Indiana, proposing creation of a coal commission and a fact-finding agency and this week considered the matter in executive session with a view of reporting some legislation on the subject to the House. Opinion of members of the committee leans strongly to the second Bland bill, which proposes a fact-finding agency of ten members, including government officials, to investigate the coal situation over a period of four years. The bill also provides that companies refusing to furnish information to such an agency shall not be allowed to ship coal in interstate commerce. Representative Bland is reported as hopeful of obtaining a favorable report on this bill by the committee, notwithstanding objections made to it that interstate commerce cannot be refused an article of trade unless it is dangerous to public health or is immoral.

If a bill is reported by the committee, and indications are that it will recommend some legislation in the present coal situation because of the apparently favorable attitude manifested toward the labor side of the controversy during the hearings by its members, consideration of such a bill by the House is problematical. The bill would have to take its place on the calendar and await its regular turn unless the Rules Committee was persuaded to bring in a special rule for its consideration out of its regular order.

### Officials Show No Concern About Strike

In other respects the coal-strike situation is a matter of no great concern in official Washington, although reports of bombing at mines are disquieting. Reports that the administration plans to take some steps to settle the strike cannot be verified. Naturally all officials concerned with phases of the strike are studying the situation and while plans for its settlement may be maturing they are being withheld. It is not believed any action will be taken until coal stocks are exhausted and there is an acute shortage of coal by industry and the public generally, or unless riots or other violence disturb peaceful conditions.

Reports to various government departments show that the strike has not caused any slowing down of manufacturing industries. These reports are to the Department of Commerce, the Federal Reserve Board and other agencies. Industries in factory cities are reported as having large reserve stocks of coal, with plants operating under favorable conditions. Due to unemployment, however, there has been a slack in buying in retail stores in coal centers.

President Harding discussed the strike situation May 1 with Chairman Nolan of the House Labor Committee and Representative Bland, a member of the committee. No definite action is planned at this time by the administration. so far as has been learned, but a program which, it is hoped, will be helpful in bringing about a settlement is being formed.

A general reorganization of the coal industry when a settlement of the present strike is reached is said to be the desire of the administration leaders, including President Harding, Secretary Hoover and Secretary Davis. A commission has been making an investigation of the industry under the direction of the Department of Commerce.

## *Report of Federal Scheme to End Strike Premature; Plan Under Consideration*

By Paul Wooton

Washington Correspondent of *Coal Age*

OPERATORS and mine workers alike were surprised by the statement, published on Tuesday afternoon, April 25, that the administration practically had perfected a plan not only for the settlement of the coal strike but which would provide the machinery for settling future labor controversies. As a result of this article officials in Washington were deluged with telegrams and long-distance telephone calls asking further particulars. It proved that there was insufficient justification for the very definite statements carried by the newspapers.

The report is believed to have grown out of a statement at the White House to the effect that a plan is under consideration. It is believed that there was no intention to convey the idea that the government is about to make a definite effort to bring this strike to a close. The idea evidently was to assure the public that the strike is being given serious consideration as is the whole matter of employer-employee relationship. It is known that the administration recognizes the possibility of being called into the controversy at a later date and that some thought is being given to the type of tribunal which must be set up if the strike be not settled before the public has been made to suffer to an extent sufficient to justify federal intervention.

### Strike Probably Will Run Natural Course

In justification of the newspaper correspondent who wrote the story it may be said that the impression frequently has been received at the White House that the administration had some big plan under way for settling the strike. This impression may not have been intended and probably has its rise in rather zealous efforts to assure the public that the administration has its fingers on the pulse of the situation. It has given the impression in some quarters that the administration is not working out skillfully its policy of watchful waiting. The real intention of the administration is believed to be to let the strike take its natural course until the parties to it are more willing than at present to work earnestly for a settlement. The chance of the parties to the strike to reach an agreement between themselves will be lessened materially if the White House continues to give out the impression that the federal government is about ready to intervene or even is willing to intervene.

Disinterested observers in Washington of the strike make the point that the operators well could take a leaf from the book of the successful political orator who never is perturbed by heckling. They point to various evidences that the operators are manifestly annoyed by the heckling they are being compelled to withstand. While it is admitted that it is difficult to remain magnanimous in the face of suggestions of foolish remedies and unfair statements of their position, their failure to meet this form of attack in a practical way is hurting them in the opinion of the public. The tactics of the operators are criticized on the ground that they seem to be engaged principally in denying everything that is said which reflects in any way on them. They seem to be striving strenuously to establish their entire blamelessness and to prove that there is absolutely nothing wrong with their own policies.

When the operators appeared before the Calder committee, every effort was made to emphasize the overdevelopment of the industry and its highly competitive character. Now the tendency seems to be one of minimizing this competitive situation. Instead of trying to explain away everything, the operators should be more intent, it is suggested, in pointing out the real difficulties under which they are laboring.

While the treason trials at Charles Town have no connection with the strike, that fact is not generally recognized by the public. News of the trials is printed by the newspapers in connection with the strike news, which increases the popular tendency to confound the two issues. The Charles Town developments are sufficiently picturesque to appeal to the newspapers. A number of special writers

are attending the trials and wide circulation is given their articles. The type of story coming from at least some of these special correspondents is anything but helpful to the opinion that the public will form of the operators.

One of the outstanding developments of the fourth week of the strike was the sudden increase of production. While this was confined entirely to the non-union fields, it indicates that consumers are not going to take chances on a settlement of the strike and are replenishing their stocks. There has been a marked diminution in the number of unconsigned loads.

## *Strike Benefits Not Forthcoming, Many Coke Workers Return to Work*

STRIKING coke workers in the Connellsville field served notice on the officials of the United Mine Workers that unless strike benefits were forthcoming they would go back to the pits and coke ovens. It was reported that no funds were available and a number of the operations resumed work. Many miners are returning to work along with the coke workers.

Organizers for the United Mine Workers have failed in their attempts to organize the miners at Ralphton, Cambria County. It is asserted by organizers that the town is so well guarded by the operators that there is no way of getting the message to the miners. At Vintondale a number of evictions were reported and there are frequent clashes between organizers and the police.

Four hundred employees of the Knickerbocker mines at Hooversville, Somerset County, held a mass meeting in the Savoy Theater last week and declared their allegiance to their employers. Organizers of the United Mine Workers have been busy in Somerset County but the men employed by the Knickerbocker company decided to remain loyal. A parade was a feature of the evening and addresses were made by leading men of the town.

The Republic district of the Connellsville coke region was the scene Saturday morning, April 29, of the first serious riot resulting from the effort of the Mine Workers to unionize the coke region. A mob demonstration occurred at the mouth of the Tower Hill No. 1 mine, in which two state police were injured, one striker shot, but not fatally, and many others suffered minor wounds, from riot clubs.

The disorders followed a mass meeting on Friday which was attended by 4,000 miners and others in which Organizers Feeney and Van Bittner made vicious remarks against operators and centered their attacks upon the guards sworn in as deputy sheriffs. They were characterized as gunmen, wharf rats, thugs and hardened criminals gathered from every city in the country.

Warning that peace and order must be maintained and that the state police would exert its full authority to maintain it was given the Tower Hill local union officials Friday following a second demonstration by women attempting to interfere with workmen entering the mine. The women were arrested and given hearings; their fines were paid by the local union. Lieutenant Charles Smith then asked the union officials if their action indicated that they countenanced the interference with workmen and a hard policy of "no more intimidation" was laid down.

A detachment of state police were on hand Saturday morning, and when 500 men and women started for the pit mouth, the riot resulted.

## *Utah Now Realizes There Is a Strike; Many Shots Fired and Troops Out*

UTAH hardly realized there was a coal strike within its borders until last Friday and Saturday, April 28 and 29, when disturbances grew so vicious that Sheriff Kelter of Carbon County wired for troops and Acting Governor Crockett called part of the state's national guard to the colors. A minority element among the miners grew so resentful over the posting of mine guards at properties that were working, that some stone throwing and fist fighting started. A Greek striker hit Sam Dorrity, a mounted guard, with a piece of iron. The guard got into a wrangle with him which ended in the Greek shooting Dorrity in the thigh. There followed a mêlée in which about 500 shots were fired, with but few casualties. Then the sheriff wired for troops to be sent to Helper and Winterquarters.

On Friday, the 28th, the state miners' union organization proposed to the operators that the strikers return to work if the armed guards would be withdrawn and organizers allowed to meet the men and hold meetings among them. The operators refused. There was no demand for the little coal they were mining, so they were not keen to bring about any general resumption if that meant surrender at any point to the union. They have lost more from low market than from the strike, they say. A further cut in coal prices of 50c. or 75c. a ton was scheduled for May 1. This reduction is entirely due to reduced wages which working miners have accepted.

## *Farrington Talks About End of Strike*

FRANK FARRINGTON, miners' president for the Illinois district, made a slight and vague contribution to the strike situation last week when he said in Chicago that the time had about arrived for the international organization of the union to permit state settlements and the resumption of work. He said he had information that Alabama district union officials had ordered their men to stay at work in spite of the strike order from union headquarters and that in some sections of Kentucky and Tennessee separate agreements were even now being signed. He had his usual bitter word for International President Lewis' effort to obtain government intervention, declaring he didn't think Lewis would succeed in getting it.

Mr. Farrington and miner members of the joint adjustment boards of Illinois districts 1, 2 and 3 sat with the operator groups for three days in Chicago last week finishing up the last of the routine labor disputes hanging over from before the strike. Ordinarily the joint board would not convene during a strike; but it finished up all pending cases this time at the request of Mr. Farrington.

## *Miners at Bridgeport, Texas, Accept Wage Cut, Pending Final Settlement*

SETTLEMENT of the strike of coal miners in the mines at Bridgeport, Texas, was effected at a conference between representatives of the miners and operators in Bridgeport on April 22. The 300 miners who had been on strike for three weeks returned to work on Monday, April 24.

A temporary agreement was reached and a tentative wage scale arranged which will remain in effect until a permanent wage scale is fixed for District 21, including the States of Oklahoma, Texas and Arkansas, and the Southwestern Coal Operators' Association. Under the temporary agreement the miners will accept a wage cut of $1.50 a day and a cut of 25c. a ton for piece work.

Coal miners at Thurber and Strawn, Texas, are still out, but negotiations are under way and it is believed that the same tentative wage scale will be put into effect in these mines and that the miners will return to work pending settlement of the strike in District 21.

## *Charges "Conspiracy Within Conspiracy" in Perpetuating Winding Gulf Injunction*

HIGH spots in the decision of Judge George W. McClintic, in the U. S. District Court for the Southern District of West Virginia, on April 25 perpetuating the injunction obtained by the Alpha-Pocahontas Coal Co. and other Winding Gulf companies were charges that the United Mine Workers of America have been in a conspiracy with the operators of Ohio, Indiana, Illinois and western Pennsylvania ever since 1898 to curtail production in West Virginia and that the United Mine Workers of America have entered into a "conspiracy within a conspiracy" to curtail production of coal in the United States in order to win their strike by creating a coal famine. The decision of Judge McClintic

was rendered in connection with the motion of counsel for the United Mine Workers to dismiss the injunction restraining union activities in the Winding Gulf field.

It is stated in the decision that the defendants, including their officials, agents and members, "have knowledge that the plaintiffs operate their mines under the "non-union system," the decision adding that "if said unlawful purposes and objects be effectuated, the plaintiffs will suffer immediate and irreparable injury, loss and damage to their properties and business, for which they have no adequate remedy at law."

Captain S. B. Avis, representing the plaintiffs, declared: "It is the first time that a definite conspiracy really did exist since the finding by Judge Anderson was appealed. This will answer all arguments about the judge's jurisdiction in these injunction cases. Had he found that a conspiracy did not exist it would have materially affected the whole proceedings."

The injunction will remain in full force and effect until the further order of the court. Counsel for the United Mine Workers argued that no conspiracy existed and that only the state courts had jurisdiction in the matters complained of.

## Illinois Coal Miners Could Work 218 Days A Year If They Would

COAL mines of Illinois have hoisted coal an average of 186 days a year during the last eleven years, according to Dr. F. C. Honnold, secretary of the Illinois Coal Operators' Association. He calculated, after a study of working-day figures and earnings in certain Illinois mines scattered all over the state, that the miner who really wants to work can get in approximately 18 per cent more working days than the number of days his mine hoists coal. He found that out of the total number of miners on whom he had statistics 15,511, or 36.7 per cent, worked 2,899,405 days, earning $25,293,469, or 70 per cent of total payroll disbursement. These are the men who put in 18 per cent more working time than their mines did. "Predicated on the 11-year average of 186 working days," says Dr. Honnold, "it will be noted therefore that 218 is the average number of days available each year to an industrious Illinois miner."

IN THE HEARINGS before the House Labor Committee on the coal situation, Ethelbert Stewart, commissioner of labor statistics of the Department of Labor, submitted a mass of data on the earnings of coal-mine labor, operation of bituminous coal mines, costs of production, wholesale and retail prices of coal, and costs of living in mining towns. Mr. Stewart's testimony, which presumably represents the anticipatory studies of the coal situation by the Bureau of Labor Statistics, has been printed by the House Committee on Labor as a special pamphlet of 101 pages. The forthcoming issue of the monthly Labor Review of the Bureau of Labor Statistics will also contain much of the same information.

Mr. Stewart submitted tables covering 29 anthracite collieries in Pennsylvania showing 12,105 miners who averaged 267 days during the year ending Oct. 21, 1921. The highest number of days operated by any colliery was 308 and the lowest 199 days. He estimated the average earnings during the year of these miners to be $1,892.23, assuming each miner worked every day of operation. In one mine, he said, the tonnage rate ranged from 32c. to $1.58.

Cost of living comparisons submitted by Mr. Stewart for anthracite were for Scranton, Pa., only, and showed that from December, 1917, to March, 1922, the cost of living had decreased 20.4 per cent. The decrease from December, 1921, to March, 1922, was 4.7 per cent. During the life of the former wage contract—February, 1920, to March, 1922—the decrease had been 16.6 per cent. The largest decreases were in food and clothing. Mr. Stewart was not prepared to give general conclusions on anthracite mining but insisted that in the bituminous field probably not more than 30 per cent of the best mines were needed, which would employ not over 65 per cent of the men now in the industry.

## Roads File Final Brief on Bunker Freight Rates; Decision Expected Soon

ANNOUNCEMENT of a decision by the Interstate Commerce Commission is expected soon in the matter of freight rates on bunker coal, which was the subject of recent hearings. The railroads concerned have filed a final brief in the case in which it is contended that there is a distinct difference between transportation service given coals for local delivery and that given coals for ship use, and that as the delivery of coal locally involves more service, it should be reflected in the transportation rate. Other arguments advanced are that there is no competition locally between coal for local use and coal for ship use, as the latter is not burned at the port; that any rate on bunker coal is a proportional and not a local rate; that there is nothing to prevent cargo coal being used as bunker coal and that this is often done, and that any change in existing differentials will have the effect of destroying the entire coastwise and overseas system of rates, which are based on a custom of many years' standing.

In its investigation of freight rates on bunker coal the Interstate Commerce Commission has received a brief from the Smokeless Coal Operators' Association of West Virginia, contending that there is no violation of law in the present practice of applying the vessel-transshipment coal rates upon bunker coal although these rates are lower than the rates for local track delivery within the port cities. The commission is requested to give weight to the absence of complaint against this practice.

## Utilities Consumed 2,710,141 Tons of Coal During March

REPORTS to the Geological Survey from central power plants, electric railways and other public utilities producing electric power, show that these plants consumed 2,710,141 net tons of coal in March, 1922. This compares with 2,600,000 in February, 2,950,000 in January, and 2,777,000 in November, 1921.

About one-third of the central-station power is produced at hydraulic plants. The increase in the water supply at these plants is indicated by the gain from 33.5 per cent in November, 1921, to 38 per cent in March, 1922, in the proportion of the total output of electricity produced by water power. The total output of electricity in February and March of this year was in excess of the corresponding months in 1920 and substantially greater than in the corresponding months of 1919 and 1921.

## Strike to End About July 1, Observer Says

FRED B. ROBINSON, secretary of the Indiana State Purchasing Committee, thinks the miners will go back to work about July 1. He has arrived at this conclusion after talking with a number of Indiana operators from whom about 280,000 tons of coal is bought for state institutions each year. He expects the state committee to delay making new contracts until later in the summer, though the old contracts expire May 1.

INSTEAD OF LISTENING to prominent men in other lines of endeavor, members of the National Coal Association at their annual meeting this year will hear from men who have distinguished themselves in the coal industry. Every effort is being made to mobilize as speakers some of the best brain power engaged in coal production and distribution. The annual meeting of the National Coal Association will be held in Chicago this year. The date is May 24 and 25 and the place is the Congress Hotel.

WHEN THE 1920 CENSUS was taken there were 733,936 persons in the United States employed as workers in coal mines. The number of coal-mine operatives shown in the 1910 census is 613,924.

## Defense Wins Opening Skirmishes in Treason Trial in West Virginia

EFFORT of counsel of the twenty-three officials and members of United Mine Workers on trial for treason before Judge Woods in the Circuit Court at Charles Town, W. Va., to have the indictments quashed on the ground that they were improperly drawn were unsuccessful. The defendants gained a point, however, when the court on Tuesday, April 25, upheld their demand for a bill of particulars. Under the court order the prosecution must specify the overt acts of each of the twenty-three defendants charged with traitorous acts and give the time and place of and his connection with the commission of the crimes alleged.

When the defense exercised its right to demand that each defendant be tried separately attorneys for the state elected to proceed with the trial of William Blizzard, president of subdistrict 2. Blizzard was arraigned on Tuesday, April 25, and pleaded not guilty, as did each of the other twenty-two defendants.

Progress in Blizzard's trial was slow, as the defense stubbornly contested every move by the prosecution, insisting that "the state must lay its cards on the table."

A jury composed of ten farmers, one merchant and one lumberman was chosen April 27. The prosecution called 275 witnesses and the defense 1,100.

Forty-four mine locals were listed by the state in its amended bill of particulars as having been influenced by Blizzard to contribute to funds for the purpose of levying war on the state last autumn. Officials are given by the state where they are known. Frank Snyder, president; Fred Mooney, secretary-treasurer, and Harold W. Houston, attorney, are on the list.

### Blizzard and Mooney Branded as Conspirators

In opening its case, the state charged Blizzard, Mooney and their associates with conspiring and executing a conspiracy to levy war against the State of West Virginia and particularly designed to nullify the effort of martial law in Mingo County and of gathering an unlawful assemblage for the purpose of destroying the sovereignty of the state. Reference was made to a statement in a printed circular issued in Charles Town about Aug. 1, 1921, in which they declared the time had come to act and that mere solutions were ineffective. This was followed, according to Attorney Belcher, by visits of the defendants and their associates to locals in different sections, when they urged miners to join in the invasions which followed.

J. F. Stewart, a union miner, took the stand as the first witness for the state. He told of seeing gatherings of armed men on Lens Creek, near Marmet, from which point the march started. He testified that "Mother" Jones addressed the men, telling them they were violating the law and advising that they go home.

Mrs. Stewart, the second witness, also told what she saw and heard at the meeting addressed by "Mother" Jones. She also told of driving her car with Keeney and District Secretary Mooney as passengers from Lens Creek, and of being stopped by an armed guard.

Governor Morgan was called to the witness stand April 28. His testimony was confined largely to a recital of his actions in issuing the martial law proclamations for Mingo County, the double call for Federal troops, the response and turning back of the armed miners. The Governor was put on by the state. He also is summoned by the defense and indicated he would endeavor to return later when needed.

Major Tom B. Davis, in charge of the operation of martial law in Mingo, and Captain Broaddus, his chief lieutenant, who was in command of the state troops at the battle of Blair Mountain, have been in Charles Town since April 26. Both are summoned as witnesses. Official announcement said that Attorney-General E. T. England, former Governor John J. Cornwell and Major-General A. A. Bandholtz had been summoned and would appear as needed.

What threatened to be a serious clash between counsel occurred May 1, when the lie was passed to the State's Attorney by Harold Houston, chief of counsel for the defense, during a warm verbal exchange over the admission of evidence pertaining to the activities of Sheriff Don Chafin and his deputies in the Logan non-union coal fields.

The fighting word was passed by Houston to A. M. Belcher, special prosecutor, when the latter intimated that the union counsel had knowledge of the fact that William Petry, vice-president of District 17, United Mine Workers, met to shoot Sheriff Chafin in the union headquarters at Charleston about two years ago. Belcher took up the challenge by declaring his willingness to meet the other belligerent "anywhere on that proposition."

The court room was thrown into an uproar as the two attorneys glared at each other. The quick intervention of Judge Woods prevented a continuation of the hostilities, which broke out when Holly Smith, one of Sheriff Chafin's deputies, took the stand to testify against William Blizzard.

Houston apologized to the Court for the scene, but there was no statement from the Special Prosecutor, and the situation was extremely tense when court adjourned for the day, after hearing testimony from several witnesses as to the armed march on the non-union coal fields last summer.

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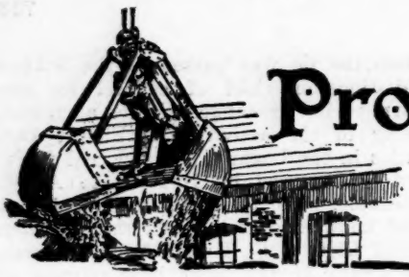
## Census of Manufactures Gives Interesting Figures on Coal Consumption

SOME of the most valuable and, to the coal man, the most interesting data so far made available by the Census of Manufactures for 1919 is contained in a recent special report compiled for the use of the Committee on Finance of the Senate. What interest the coal man in this array of figures are the annual tonnages of coal, both hard and soft, consumed by each and every industry in the country. In the accompanying table are shown the industries that in 1919 used one million net tons or more of bituminous coal, or that used 125,000 gross tons or more of anthracite. This is but a selection of the more important coal-consuming industries. Many more are listed in the report from which these figures are taken. All industries included in the census, including byproduct and beehive coke manufacturing, are shown to has consumed 203,452,724 net tons of bituminous coal and 14,545,300 tons of anthracite.

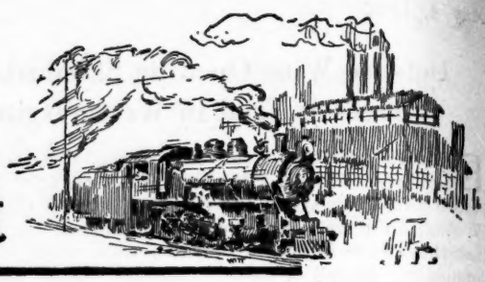
INDUSTRIES THAT CONSUMED 1,000,000 OR MORE TONS OF BITUMINOUS COAL, OR 125,000 GROSS TONS OR MORE OF ANTHRACITE, IN 1919.

(Reported by the Census of Manufactures)

| Industry | Anthracite In Gross Tons | Bituminous Coal In Net Tons |
|---|---|---|
| Automobiles | 17,133 | 1,120,585 |
| Brass, bronze and copper products | 200,719 | 655,947 |
| Bread and other bakery products | 596,989 | 554,982 |
| Brick and tile, terra cotta and clay products | 128,252 | 6,894,745 |
| Cars and general shop construction and repairs by steam railroads | 609,078 | 6,964,403 |
| Cement | 272,266 | 6,031,428 |
| Chemicals | 389,356 | 3,844,667 |
| Coke, not including gas-house coke | 5,808 | 64,245,629 |
| Confectionery and ice cream | 126,566 | 458,614 |
| Cotton lace | 322,668 | 3,610,372 |
| Dyeing and finishing textiles, except that done in textile mills | 422,855 | 1,071,156 |
| Electrical machinery, apparatus and supplies | 175,800 | 1,091,704 |
| Flour-mill and grist-mill products | 57,034 | 1,582,494 |
| Foundry supplies | 513,767 | 3,691,909 |
| Gas | 1,388,467 | 7,383,687 |
| Glass | 15,268 | 2,653,654 |
| Ice | 205,875 | 3,309,634 |
| Iron and steel, steel works and rolling mills | 598,944 | 25,911,098 |
| Iron and steel blast furnaces | 42,779 | 2,261,315 |
| Leather tanned carried and finished | 89,722 | 1,488,166 |
| Liquors, malt, including cereal beverages | 346,914 | 1,692,067 |
| Lumber and timber products | 15,386 | 1,620,058 |
| Oil and coke cottonseed | 34,763 | 1,172,175 |
| Paper and wood pulp | 869,948 | 7,863,150 |
| Petroleum, refining | 1,105,503 | 3,619,534 |
| Rubber goods, not elsewhere specified | 84,915 | 1,928,116 |
| Silk goods | 306,165 | 269,717 |
| Slaughtering and meat packing | 222,891 | 3,802,849 |
| Smelting and refining, copper | 179,026 | 1,088,511 |
| Smelting and refining zinc | 835,129 | 1,123,599 |
| Sugar, beet | ..... | 1,047,603 |
| Sugar refining, not including beet sugar | 406,248 | 987,640 |
| Worsted goods | 161,207 | 895,399 |



# Production and the Market



## *Weekly Review*

BUYING interest is moving West. The first upward trend in prices came in the second week of the strike and occurred in the New York market. The next week interest centered around Pittsburgh, where the steel companies actively entered the market to replace tonnage lost to the union in Connellsville. The fourth week of the strike, and as the fifth week begins, finds the storm center hanging over the Cincinnati gateway.

The principal demand is as yet for high-volatile coal, and the main supply of the country is now eastern Kentucky and southern West Virginia. Kentucky coals are now being marketed on a "mine-run" basis. On top of the quiet but steady buying of the steel companies comes the request for Lake tonnage. In the offing is the inevitable demand from Chicago and the Midwest as local supply of unbilled coal is absorbed. Within a week or ten days Chicago will be the center of interest among coal speculators.

### Index of Spot Prices Advances 15 Points

Prices range over a wide spread. When prices became too high for the steel companies they ceased to bid, and the market for high-volatile coal in Pittsburgh was thereby weakened. Lack of demand in New England and abundance of Southern coal in New York Harbor combined to temper the price on any coal for eastern and northern New York line delivery. Elsewhere prices have substantially increased over last week. *Coal Age* Index of spot prices of bituminous coal advanced 15 points to 221 on May 1, as compared with 206 on April 24. Jobbers continue to be the most numerous class of purchasers of coal.

Consumers generally, both household buyers of anthracite and bituminous and industrial users, are holding off to the best of their ability, waiting for the expected reduction in freight rates on coal. From every center come reports that purchases of coal are being delayed until freights are reduced. Although demand from industries is not increasing rapidly, consumption is gaining steadily, as business over the country is picking up.

Production of bituminous coal passed the four million-ton mark the fourth week of the strike and as demand continues to increase it will go still higher. "No-market" is limiting the output of nearly every producing non-union field.

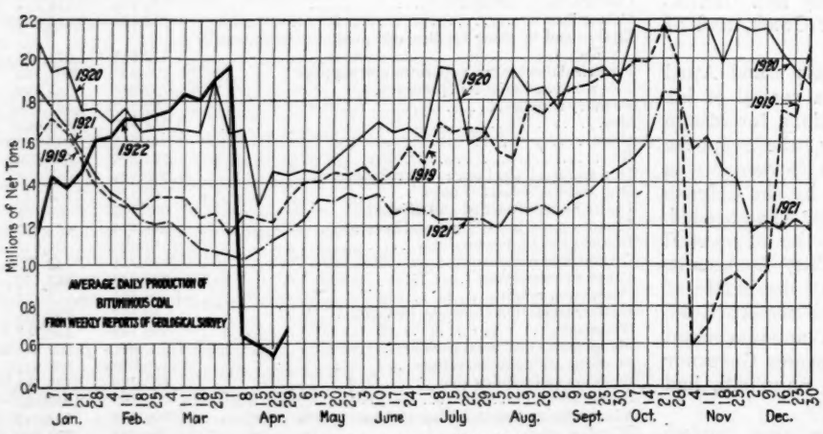
Anthracite production, of course, is at a standstill, only 6,000 tons being produced during the third week of the strike. Cold weather during the latter part of April caused a slight pick-up in retail distribution, but orders placed were only for the barest requirements necessary to piece out the season. Retail yards show the effect of the month's suspension of receipts, but domestic consumers show no anxiety over the outlook. Steam grades are about all cleaned up with the exception of buckwheat No. 1, but even with this condition there has been no urgent purchasing during the last two weeks.

Coke is a scarce article and the extremely limited offerings have brought high prices. Coke users are generally unable to pay current figures and many of them are out of the market, although ready purchasers can still be found to absorb what little coke is being made.

### BITUMINOUS

In the fourth week of the strike production turned upward. The output of bituminous coal is expected to pass the 4,000,000-ton mark, according to the Geological Survey. Production of anthracite, however, remains practically zero. The Survey says:

"The revised figures for the third week (April 17-22) are 3,560,000 tons of soft coal and 6,000 tons of anthracite, a total for all coal of 3,566,000 net tons. The same week of the 1919 strike saw 5,344,000 tons of bituminous and 2,055,000 tons of anthracite produced, a total of 7,399,000 tons. The current output of hard and soft coal combined




**Estimates of Production**
(Net Tons)

| Weeked ended: | 1922 | 1921 |
|---|---|---|
| **BITUMINOUS** | | |
| Apr. 8 (*b*) | 3,835,000 | 6,120,000 |
| Apr. 15 (*b*) | 3,656,000 | 6,528,000 |
| Apr. 22 (*a*) | 3,560,000 | 6,815,000 |
| Daily average | 593,000 | 1,136,000 |
| Calendar year | 140,338,000 | 120,167,000 |
| Daily av. calendar year. | 1,485,000 | 1,272,000 |
| **ANTHRACITE** | | |
| Apr. 8 | 9,000 | 1,865,000 |
| Apr. 15 | 6,000 | 1,885,000 |
| Apr. 22 (*a*) | 6,000 | 1,903,000 |
| **COKE** | | |
| Apr. 15 (*a*) | 140,000 | 74,000 |
| Apr. 22 (*a*) | 93,000 | 73,000 |
| Calendar year | 2,216,000 | 2,274,000 |

(*a*) Subject to revision. (*b*) Revised from last report.

is, therefore, some 3,800,000 tons short of that in the corresponding period of the 1919 strike.

"Telegraphic reports indicate a definite increase in production of soft coal during last week (April 24-29). Loadings on Monday, April 24, were 12,131 cars. This was the highest since the strike began, yet it was exceeded on Tuesday and again on Wednesday, when 12,520 cars were loaded. If this rate be maintained during the rest of the week, the total output should approximate 4,150,000 tons. The trend of production may be seen from the following table of cars loaded daily:

| Day | First Week | Second Week | Third Week | Fourth Week |
|---|---|---|---|---|
| Monday | 11,445 | 10,772 | 7,898 | 12,131 |
| Tuesday | 11,019 | 10,658 | 10,041 | 12,377 |
| Wednesday | 11,437 | 10,961 | 11,088 | 12,520 |
| Thursday | 11,090 | 11,482 | 11,193 | 12,000 |
| Friday | 11,296 | 10,714 | 11,596 | ..... |
| Saturday | 8,888 | 8,501 | 10,194 | ..... |

"The increase has come largely from the non-union districts of the Middle and Southern Appalachians. It is not due to the return to work of striking miners, either union or non-union, but rather to increased demand, resulting in greater activity in those districts which have remained at work.

"Consumption is still being met largely from storage. Even at the present rate of output the draft upon consumers' stock piles cannot be much less than 4,000,000 tons a week."

UNBILLED CARS OF COAL AT THE MINES

| Week Ended | Cars Bituminous | Cars Anthracite | Total Cars |
|---|---|---|---|
| March 4 | 14,126 | 1,548 | 15,674 |
| April 1 | 28,867 | 2,506 | 31,373 |
| April 8 | 30,730 | 2,815 | 33,545 |
| April 15 (revised) | 26,350 | 1,655 | 28,011 |
| April 22 (revised) | 22,836 | 1,254 | 24,090 |

The Lake market is now taking a considerable volume of non-union coals. Boats are clearing daily, although the movement is still below normal. Coal in two vessels at Lake Erie ports has been unloaded to meet local demands and more cargoes will be diverted if the need arises. The flow of coal to the lower ports became so heavy last week that a temporary embargo was necessary against certain Kentucky mines. The Lake market is being used by these producers as an outlet for any tonnage not finding a ready sale.

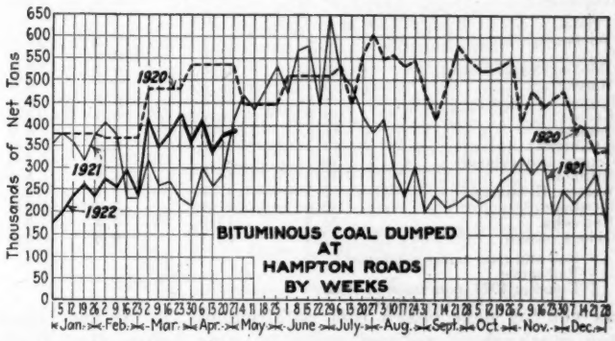
All-rail movement to New England continued to decline during the third week of the strike. Central Pennsylvania grades are finding a ready market in other sections and New England is so surfeited with coal that the higher spot quotations afford no opportunity to close orders. The situation is different at the New York piers, as shippers whose mining connections are closed are substituting considerable spot tonnage.

CARS OF COAL FORWARDED OVER THE HUDSON TO EASTERN NEW YORK AND NEW ENGLAND

| Week Ended | 1922 Anthracite | 1922 Bituminous | 1921 Anthracite | 1921 Bituminous |
|---|---|---|---|---|
| April 8 | 2,702 | 2,130 | 1,867 | 2,526 |
| April 15 | 966 | 1,365 | 2,724 | 2,474 |
| April 22 | 371 | 947 | 2,566 | 2,322 |

(a) Figures furnished by courtesy of the American Railway Association.

Hampton Roads factors are more active. There is a strong market, especially on high-volatiles, prices on which have increased rapidly. Pocahontas quotations also are up,




although not now as high as the high-volatile coals. Dumpings for all accounts were 384,677 net tons during the week ended April 27, as compared with 367,892 tons in the preceding week, and accumulation at the piers is less.

## ANTHRACITE

A few cars of anthracite steam sizes dredged from the rivers continue to go forward—about 6,000 tons during the third week of the strike—but production is otherwise nil. The market is as sluggish as at any time since the strike began. Cold weather late in April temporarily aided the retailers, but no householder stocking movement is in evidence and orders are for small lots only.

The consumer can see no reason for making provision

## Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

| Low-Volatile, Eastern | Market Quoted | Apr.3, 1922 | Apr.17, 1922 | Apr.24, 1922 | May 1, 1922† |
|---|---|---|---|---|---|
| Pocahontas lump | Columbus | $2.95 | $2.85 | $2.85 | **$3.00@$3.10** |
| Pocahontas mine run | Columbus | 1.85 | 1.90 | 2.00 | **2.25@ 2.50** |
| Pocahontas screenings | Columbus | 1.15 | 1.40 | 1.55 | **1.50@ 2.00** |
| Pocahontas lump | Chicago | 2.60 | 2.50 | 2.30 | **2.50@ 3.00** |
| Pocahontas mine run | Chicago | 1.35 | 1.65 | 1.80 | **1.85@ 2.00** |
| Pocahontas lump | Cincinnati | 2.90 | 2.35 | 2.65 | **2.75@ 3.00** |
| Pocahontas mine run | Cincinnati | 1.75 | 1.70 | 2.00 | **2.00@ 2.25** |
| Pocahontas screenings | Cincinnati | 1.25 | 1.60 | 1.90 | **2.00@ 2.25** |
| *Smokeless mine run | Boston | 4.55 | 4.75 | 4.80 | **4.85@ 5.25** |
| Clearfield mine run | Boston | 1.95 | 2.15 | 2.70 | *2.50@ 2.75* |
| Cambria mine run | Boston | 2.45 | 2.55 | 3.25 | *2.75@ 3.25* |
| Somerset mine run | Boston | 1.90 | 2.25 | 2.70 | **2.60@ 3.00** |
| Pool 1 (Navy Standard) | New York | 2.85 | 3.40 | 3.65 | **3.50@ 4.00** |
| Pool 1 (Navy Standard) | Philadelphia | 2.80 | 3.15 | 3.45 | **3.50@ 3.85** |
| Pool 1 (Navy Standard) | Baltimore | 2.70 | .... | 3.75 | 3.50@ 4.00 |
| Pool 9 (Super. Low Vol.) | New York | 2.25 | 3.25 | 3.25 | 3.00@ 3.50 |
| Pool 9 (Super. Low Vol.) | Philadelphia | 2.15 | 2.75 | 3.05 | **3.15@ 3.40** |
| Pool 9 (Super. Low Vol.) | Baltimore | 2.30 | .... | 3.25 | **3.25@ 3.50** |
| Pool 10 (H. Gr. Low Vol.) | New York | 2.00 | 2.75 | 3.00 | 2.75@ 3.25 |
| Pool 10 (H. Gr. Low Vol.) | Philadelphia | 1.90 | .... | 2.90 | **3.00@ 3.25** |
| Pool 10 (H. Gr. Low Vol.) | Baltimore | 2.20 | .... | 2.95 | **3.25** |
| Pool 11 (Low Vol.) | New York | 1.80 | 2.75 | 2.75 | 2.50@ 3.00 |
| Pool 11 (Low Vol.) | Philadelphia | 1.75 | 2.25 | 2.70 | **2.75@ 2.85** |
| Pool 11 (Low Vol) | Baltimore | 2.10 | 2.75 | 2.85 | **3.00@ 3.15** |
| **High-Volatile, Eastern** | | | | | |
| Pool 54-64 (Gas and St.) | New York | 1.50 | 2.90 | 2.50 | **2.50@ 2.85** |
| Pool 54-64 (Gas and St.) | Philadelphia | 1.50 | 2.15 | .... | **2.20@ 2.80** |
| Pool 54-64 (Gas and St.) | Baltimore | 1.55 | 2.90 | .... | **2.85@ 3.10** |
| Pittsburgh sc'd. Gas | Pittsburgh | 2.65 | .... | .... | .... |
| Pittsburgh mine run (St.) | Pittsburgh | 2.00 | .... | .... | .... |
| Pittsburgh slack (Gas) | Pittsburgh | 1.55 | .... | .... | .... |
| Kanawha lump | Columbus | 2.30 | 2.30 | 2.45 | **2.75@ 3.00** |
| Kanawha mine run | Columbus | 1.50 | 1.60 | 2.15 | **2.50@ 2.75** |
| Kanawha screenings | Columbus | 1.45 | 1.50 | 1.70 | **1.75@ 2.25** |
| W. Va. Splint lump | Cincinnati | 2.15 | 2.00 | 2.65 | **2.75** |
| W. Va. Gas lump | Cincinnati | 1.85 | 1.75 | 2.40 | **2.50@ 3.00** |
| W. Va. mine run | Cincinnati | 1.40 | 1.90 | 1.95 | **2.00@ 2.75** |
| W. Va. screenings | Cincinnati | 1.30 | 1.70 | 1.90 | **1.85@ 2.50** |
| Hocking lump | Columbus | 2.60 | 2.65 | 2.65 | **3.00@ 3.10** |
| Hocking mine run | Columbus | 1.75 | 1.75 | 2.15 | **2.75@ 3.00** |
| Hocking screenings | Columbus | $1.55 | $1.50 | $1.75 | **$2.00@$2.25** |
| Pitts. No. 8 lump | Cleveland | 2.90 | 3.40 | 3.40 | *2.75@ 3.75* |
| Pitts. No. 8 mine run | Cleveland | 1.90 | 2.35 | 2.55 | **2.75@ 3.00** |
| Pitts. No. 8 screenings | Cleveland | 1.70 | 2.20 | 2.55 | **2.75@ 3.00** |
| **Midwest** | | | | | |
| Franklin, Ill. lump | Chicago | 3.45 | 3.45 | 3.45 | 3.30@ 3.65 |
| Franklin, Ill. mine run | Chicago | 2.40 | 2.75 | 2.75 | **2.75@ 3.25** |
| Franklin, Ill. screenings | Chicago | 2.05 | 2.75 | 2.75 | **2.75@ 3.25** |
| Central, Ill. lump | Chicago | 2.60 | .... | 2.65 | **2.60@ 2.85** |
| Central, Ill. mine run | Chicago | 2.25 | .... | 2.65 | **2.60@ 2.85** |
| Central, Ill., screenings | Chicago | 1.85 | .... | 1.85 | **1.75@ 2.25** |
| Ind. 4th Vein lump | Chicago | 3.15 | 3.15 | 3.15 | 3.00@ 3.25 |
| Ind. 4th Vein mine run | Chicago | 2.35 | 2.50 | 2.50 | 2.25@ 2.75 |
| Ind. 4th Vein screenings | Chicago | 2.15 | 2.25 | 2.25 | 2.00@ 2.50 |
| Ind. 5th Vein lump | Chicago | 2.60 | 2.60 | 2.60 | 2.50@ 2.75 |
| Ind. 5th Vein mine run | Chicago | 2.20 | 2.60 | 2.60 | 2.50@ 2.75 |
| Ind. 5th Vein screenings | Chicago | 1.75 | 2.40 | 2.40 | 2.25@ 2.50 |
| Standard lump | St. Louis | 2.65 | .... | .... | **3.00@ 3.25** |
| Standard mine run | St. Louis | 1.80 | .... | .... | **2.50@ 3.00** |
| Standard screenings | St. Louis | 1.45 | .... | .... | **2.50@ 3.00** |
| West. Ky. lump | Louisville | 2.35 | 2.35 | 2.20 | **2.50@ 2.65** |
| West. Ky. mine run | Louisville | 1.85 | 2.00 | 2.00 | **2.50@ 2.65** |
| West. Ky. screenings | Louisville | 1.70 | 1.90 | 2.25 | **2.50@ 2.65** |
| **South and Southwest** | | | | | |
| Big Seam lump | Birmingham | 2.00 | 2.00 | 2.00 | 1.95@ 2.10 |
| Big Seam mine run | Birmingham | 1.70 | 1.70 | 1.70 | 1.50@ 1.90 |
| Big Seam (washed) | Birmingham | 1.85 | 1.85 | 1.85 | 1.75@ 2.00 |
| S. E. Ky. lump | Louisville | 2.25 | 2.25 | 2.40 | **2.50@ 3.00** |
| S. E. Ky. mine run | Louisville | 1.55 | 1.75 | 2.40 | **2.50@ 3.00** |
| S. E. Ky. screenings | Louisville | 1.40 | 1.55 | 1.70 | **2.50@ 3.00** |
| S. E. Ky. lump | Cincinnati | 2.10 | 2.15 | 2.40 | **2.75@ 3.00** |
| S. E. Ky. mine run | Cincinnati | 1.40 | 1.90 | 2.00 | **2.00@ 2.75** |
| S. E. Ky. screenings | Cincinnati | 1.30 | 1.65 | 1.65 | **2.00@ 2.50** |
| Kansas lump | Kansas City | 4.50 | 4.25 | 4.25 | 4.00@ 4.50 |
| Kansas mine run | Kansas City | 4.00 | 4.00 | 4.00 | **4.00@ 4.25** |
| Kansas screenings | Kansas City | 2.50 | 2.50 | 2.50 | **2.50@ 2.75** |

*Gross tons, f.o.b. vessel, Hampton Roads.

†Advances over previous week shown in **heavy type**, declines in *italics*.

## How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V of the Weekly Report.

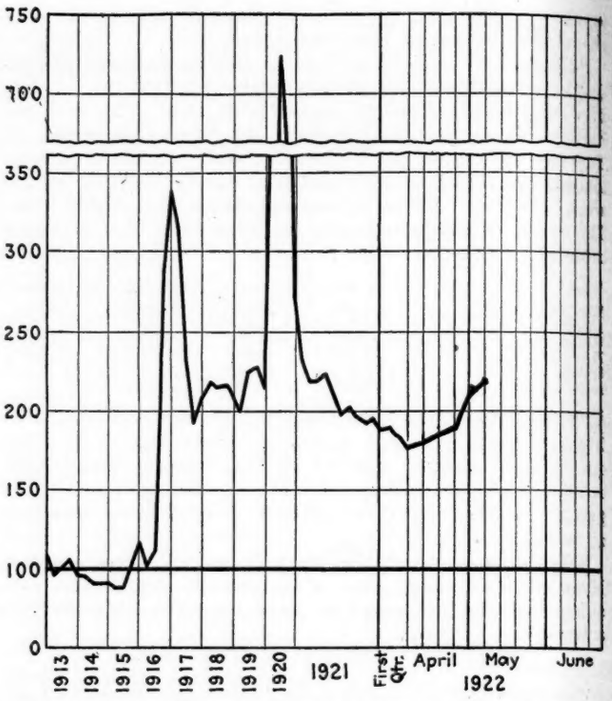
| | Six Months July to Dec. 1921 | Jan. 1 to Apr. 1, 1922 Inclusive | Apr. 3 to Apr. 15, 1922 Inclusive | Week Ended Apr. 15 |
|---|---|---|---|---|
| U. S. Total | 45.6 | 55.7 | .... | .... |
| Non-union | | | | |
| Alabama | 63.5 | 64.6 | 73.0 | 69.5 |
| Somerset County | 55.5 | 74.9 | 84.6 | 81.9 |
| Panhandle, W. Va. | 55.3 | 51.3 | 30.8 | 30.8 |
| Westmoreland | 54.9 | 58.8 | 77.6 | 71.9 |
| Virginia | 54.8 | 59.9 | 61.0 | 61.0 |
| Harlan | 53.3 | 54.8 | 34.7 | 40.1 |
| Hazard | 51.7 | 58.4 | 46.4 | 49.1 |
| Pocahontas | 49.8 | 60.0 | 67.9 | 71.4 |
| Tug River | 48.1 | 63.7 | 68.0 | 68.2 |
| Logan | 47.6 | 61.1 | 67.2 | 68.2 |
| Cumberland-Piedmont | 46.6 | 50.6 | 8.2 | 8.9 |
| Winding Gulf | 45.7 | 64.3 | 63.3 | 65.1 |
| Kenova-Thacker | 38.2 | 54.3 | 64.7 | 66.4 |
| N. E. Kentucky | 32.9 | 47.7 | 54.3 | 55.6 |
| New River‡ | 24.3 | 37.9 | 8.0 | 8.6 |
| Union | | | | |
| Oklahoma | 63.9 | 59.6 | 19.2 | 17.3 |
| Iowa | 57.4 | 78.4 | 0.0 | 0.0 |
| Ohio, north and central | 52.6 | 46.6 | 0.0 | 0.0 |
| Missouri | 50.7 | 66.8 | 0.1 | 0.0 |
| Illinois | 44.8 | 54.5 | 0.0 | 0.0 |
| Kansas | 42.0 | 54.9 | 8.5 | 12.0 |
| Indiana | 41.4 | 53.8 | 0.0 | 0.0 |
| Pittsburgh† | 41.2 | 39.8 | 0.0 | 0.0 |
| Central Pennsylvania | 39.1 | 50.2 | 12.8 | 11.4 |
| Fairmont | 35.3 | 44.0 | 4.2 | 4.8 |
| Western Kentucky | 32.5 | 37.7 | 19.5 | 18.2 |
| Pittsburgh* | 30.4 | 31.9 | 0.0 | 0.0 |
| Kanawha | 26.0 | 13.0 | 0.7 | 0.8 |
| Ohio, southern | 22.9 | 24.3 | 0.0 | 0.0 |

* Rail and river mines combined.
† Rail mines.
‡ Union in 1921, non-union in 1922.

as yet for next year's fuel requirements, as he has heard too much about reduced costs to come before that time. There is no steam demand, even though all small coals are scarce, with the exception of buckwheat No. 1. The Lake market is dormant, as all available coal has been sold in the East this spring.

### COKE

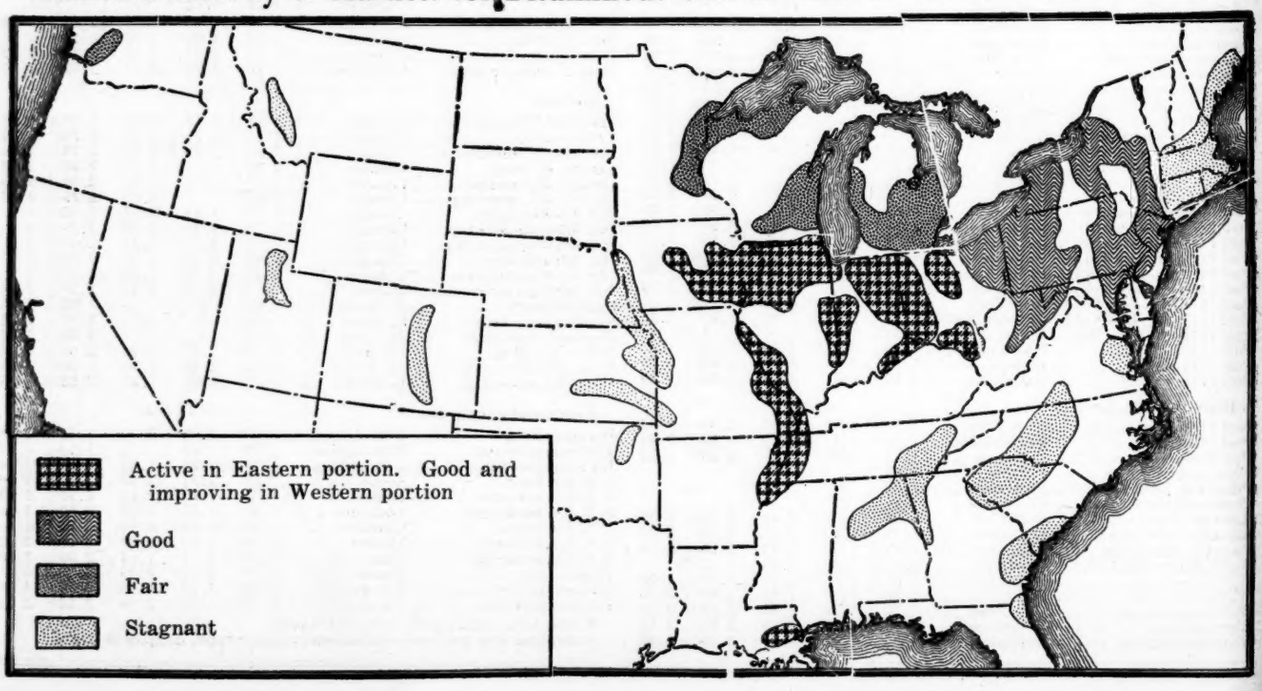
Beehive coke production slumped further during the third week of the strike. The output was 93,000 net tons, as compared with 140,000 tons during the week ended April 15. Additional closings in the Connellsville region account for this decrease. The present weekly rate of production is only 49 per cent of that in the week before the strike. Observers believe that the high tide of the strike has been reached but that the end will be slow in coming. Beehive coke is in such short supply at Buffalo that local smelting furnaces are drawing on the byproduct coke ovens.




**Coal Age Index 221, Week of May 1, 1922.** Average spot price for same period, $2.67. This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the total output of the United States, weighted in accordance first with respect to the proportions each of slack, prepared and run-of-mine normally shipped and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board. (Pittsburgh prices not included in figures for last week.)

West Virginia and Kentucky coals have been substituted in heavy volume for coke making at the Clairton byproduct plant. Offerings of coke are extremely light and the high prices have caused some closings of merchant blast furnaces whose supply has been cut off. The acute needs of some foundries have caused all grades to be quoted alike.

## Relative Activity of Markets for Bituminous Coal at End of Fourth Week of Strike



# Foreign Market And Export News

## British Output Reduced by Easter Holidays; Glut of Small Coals Weakens Prices

BRITISH production, as cabled to *Coal Age*, slumped during the pre-Easter week. The output during the week ended April 15 was 4,384,000 gross tons as compared with 4,961,000 in the preceding week.

The market is steady, especially for the larger sizes and much May business has been taken. Smaller sizes are in oversupply. Inquiries are increasing, activity being noted recently among South American and Canadian buyers. The British Admiralty has contracted for 90,000 tons of Blyth steam at 21s. 6d. f.o.b. Scandinavian interests have ordered 100,000 tons of Durham coal at 21s. f.o.b.

There is no jubilation on account of the American strike and those in well-informed circles do not feel that the strike will greatly benefit this country. The general opinion is that buyers on the other side have pretty large stocks and are not likely to call for assistance from Britain unless the strike proves to be unduly protracted. As a result there are no efforts to meet an American demand that will probably not be forthcoming.

### Hampton Roads Pier Situation

| | Week Ended April 20 | Week Ended April 27 |
|---|---|---|
| N. & W. Piers, Lamberts Point: | | |
| Cars on hand | 2,739 | 2,569 |
| Tons on hand | 150,020 | 138,617 |
| Tons dumped | 177,558 | 188,019 |
| Tonnage waiting | 25,000 | 22,000 |
| Virginian Ry. Piers, Sewalls Point: | | |
| Cars on hand | 1,330 | 1,333 |
| Tons on hand | 79,250 | 66,650 |
| Tons dumped | 88,138 | 92,172 |
| Tonnage waiting | 42,000 | 16,000 |
| C. & O. Piers, Newport News: | | |
| Cars on hand | 1,041 | 921 |
| Tons on hand | 52,050 | 46,050 |
| Tons dumped | 62,779 | 63,271 |
| Tonnage waiting | 19,000 | 2,251 |

### March Exports Heaviest of the Year

Exports of bituminous coal picked up sharply during March, according to figures compiled by the Bureau of Foreign and Domestic Commerce. Shipments to Canada ran close to the million-ton mark. Latin America took more coal, as did Italy and France. The detailed figures, as well as the revised figures for March, 1921, are as follows:

MARCH EXPORTS AND IMPORTS

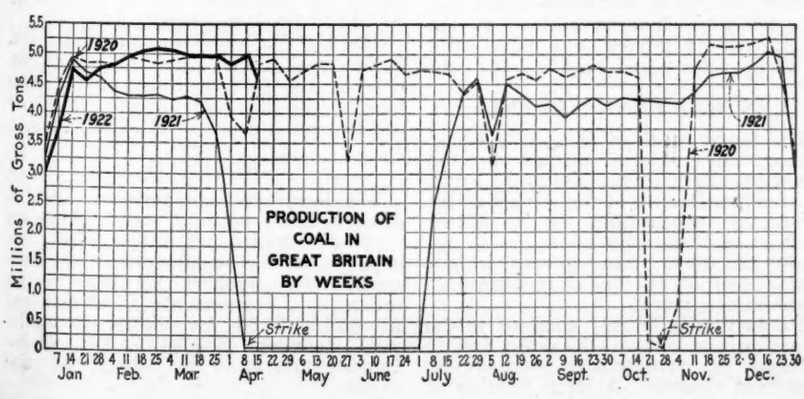
| | March 1921 | March 1922 |
|---|---|---|
| Exports, bituminous coal: | | |
| By rail to | | |
| Canada | 591,557 | 974,321 |
| Mexico | 12,687 | 7,889 |
| Total | 604,244 | 982,210 |
| By vessel to | | |
| West Indies | 2,784 | 34,077 |
| Panama | 19,657 | ..... |
| Cuba | 74,963 | 57,258 |
| Total | 97,404 | 91,335 |
| France | 37,728 | 8,227 |
| Italy | 71,517 | 14,200 |
| Netherlands | 26,881 | ..... |
| Sweden | 6,839 | ..... |
| Denmark | 6,577 | 3 |
| Total Europe | 149,542 | 22,430 |
| Argentine | 68,562 | 37,591 |
| Brazil | 52,801 | 40,492 |
| Chile | 26,783 | 6,557 |
| Total South America | 148,146 | 84,640 |
| Egypt | 68,748 | 1,297 |
| Other countries | 83,756 | 5,401 |
| Total bituminous | 1,151,840 | 1,187,313 |
| Total anthracite | 307,940 | 294,753 |
| Total coke | 25,061 | 25,435 |
| Imports, bituminous coal: | | |
| Imported from: | | |
| United Kingdom | ..... | 4,100 |
| Canada | 71,883 | 104,101 |
| Japan | 9,545 | 313 |
| Australia | 1,443 | 10,010 |
| Other countries | 229 | 80 |
| Total bituminous coal | 83,100 | 118,604 |
| Total coke | 3,853 | 8,799 |
| Total anthracite | 1,697 | 25 |

### Hampton Roads Market Is Brisk

Business at Hampton Roads is growing more brisk, with prospects of all dumping records of the last twelve months being broken by the Lamberts Point Piers. The outstanding feature of the market was the sharp advance in prices.

Lack of supply of high-volatile coal has created a strong market for those grades, and prices have soared to a point which has not been reached before for many months. Coastwise business is going forward rapidly, with all available bottoms being taken in advance.

Foreign shipments were holding their own, but the bulk of the trade is moving to the North. Supplies of low-volatiles are good.




### Coal Paragraphs from Foreign Lands

GERMANY—Production of coal in the Ruhr region for the week ended April 15 was 1,578,000 metric tons, according to a cable to *Coal Age*. The previous week's output was 1,908,000 tons.

ITALY — The price of Cardiff steam first is quoted at 42s. 9d., according to a cable to *Coal Age*, unchanged from last week's quotation.

It is not expected that consumption of imported coal will reach the pre-war maximum for a considerable period, says a report to the Department of Commerce. However, the quantity of coal imported in 1921—7,653,000 tons—is not sufficient to meet Italy's requirements under normal conditions, and a gradual increase to about 9,000,000 tons per year may be expected when business conditions improve. At present, consumption has been reduced to not much more than 3,000,000 tons.

### Export Clearances, Week Ended, April 27, 1922

FROM HAMPTON ROADS:

| | Tons |
|---|---|
| For Atlantic Islands: | |
| Nor. S.S. Bur, for Fort de France | 6,401 |
| For Canada: | |
| Dan. S.S. Olaf L. Kongsted, for Montreal | 4,543 |
| For Colombia: | |
| Nor. S.S. Tosto, for Cartagena | 987 |
| For Cuba: | |
| Dan. S.S. Rolf, for Havana | 2,691 |
| Swed. S.S. Mongolia, for Havana | 2,029 |
| Dan. S.S. Sarmatia, for Havana | 2,983 |
| For Italy: | |
| Jap. S.S. Fuiji Maru for Portoferrajo | 8,272 |
| Am. Schr. Percy R. Pyne II, for St. Georges | 2,038 |

### Pier and Bunker Prices, Gross Tons

PIERS

| | April 22 | April 29† |
|---|---|---|
| Pool 9, New York | $6.15@$6.40 | $6.15@$6.40 |
| Pool 10, New York | 5.80@ 6.10 | 5.80@ 6.10 |
| Pool 9, Philadelphia | 6.10@ 6.50 | 6.10@ 6.50 |
| Pool 10, Philadelphia | 5.75@ 6.10 | 5.75@ 6.10 |
| Pool 71, Philadelphia | 6.50@ 6.65 | 6.50@ 6.65 |
| Pool 1, Hamp. Rds. | 4.75@ 4.85 | **4.75@ 5.25** |
| Pools 5-6-7 Hamp. Rds | 5.00 | **5.25@ 5.40** |
| Pool 2, Hamp. Rds. | 4.75 | **4.75@ 4.85** |

BUNKERS

| | | |
|---|---|---|
| Pool 9, New York | $6.45@$6.70 | $6.45@$6.70 |
| Pool 10, New York | 6.10@ 6.40 | 6.10@ 6.40 |
| Pool 9, Philadelphia | 6.40@ 6.55 | **6.40@ 6.60** |
| Pool 10, Philadelphia | 5.85@ 6.25 | **6.00@ 6.40** |
| Pool 1, Hamp. Rds. | 4.85@ 4.90 | **4.95@ 5.00** |
| Pool 2, Hamp. Rds. | 4.75 | **4.80** |
| Welsh, Gibraltar | 40s. 6d. f.o.b. | **43s.** f.o.b. |
| Welsh, Rio de Janeiro | 55s. f.o.b. | 55s. f.o.b. |
| Welsh, Lisbon | 42s. f.o.b. | **43s.** f.o.b. |
| Welsh, La Plata | 50s. f.o.b. | 50s. f.o.b. |
| Welsh, Genoa | 42s. t.i.b. | **43s.** t.i.b. |
| Welsh, Messina | 38s. f.o.b. | ..... |
| Welsh, Algiers | 38s. 6d. f.o.b. | **41s.** f.o.b. |
| Welsh, Pernambuco | 62s. 6d. f.o.b. | 62s. 6d. f.o.b. |
| Welsh, Bahia | 62s. 6d. f.o.b. | 62s. 6d. f.o.b. |
| Welsh, Madeira | 40s. f.a.s. | **42s. 6d.** f.a.s. |
| Welsh, Teneriffe | 38s. f.a.s. | **40s. 6d.** f.a.s. |
| Welsh, Malta | 42s. f.o.b. | **44s. 6d.** f.o.b. |
| Welsh, Las Palmas | 40s. f.a.s. | **40s. 6d.** f.a.s. |
| Welsh, Naples | 38s. f.o.b. | 38s. f.o.b. |
| Welsh, Rosario | 52s. 6d. f.o.b. | 52s. 6d. f.o.b. |
| Welsh, Singapore | 55s. f.o.b. | **57s. 6d.** f.o.b. |
| Port Said | 46s. 6d. f.o.b. | 46s. 6d. f.o.b. |
| Alexandria | [45s. | 45s. |

### Current Quotations British Coal f.o.b. Port, Gross Tons

*Foreign Quotations by Cable to Coal Age*

| Cardiff: | April 22 | April 29† |
|---|---|---|
| Admiralty, Large | 28s. 6d.@ 29s. | *28s. 6d.* |
| Steam, Smalls | 19s.@ 20s. | 19s.@ 20s. |
| Newcastle: | | |
| Best Steams | 23s 9d@ 24s 3d | **23s. @ 24s.** |
| Best Gas | 24s.@ 24s. 6d. | **23s. @ 24s.** |
| Best Bunkers | 22s. 6d.@ 23s. | **22s.@ 22s. 6d.** |

†Advances over previous week shown in **heavy type**; declines in *italics*.

# North Atlantic

## With Diminution of Reserves Market Shows Firmer Tone

**Flurries Disappear—Coal Scarce and Price Trend Upward—Small Buyers in Market, Larger Ones Make Inquiries—Southern Coals Counteract Bullish Tendency.**

A DIMINUTION of coal reserves is gradually causing a firmer tone to the market, which is strong and without the flurries that marked the transactions of a week or two ago. Coal is scarce and prices show an upward trend. Small buyers are coming into the market and large ones have reappeared, to the extent at least of making active inquiries.

Southern coals from Hampton Roads are making strides in the North Atlantic markets. This factor is a restraining influence on a distinctly bullish coal market. Line business is good but at New York Tidewater, however, there is a trace of softening, under the volume of coals from the Roads.

### NEW YORK

The local situation is quiet and is largely affected by the receipt of upward of 50,000 tons of Southern coals during the past ten days. It is still coming forward and is being quoted by some houses at $6.40@$6.75 alongside. Cars on hand at the various loading piers on April 28 were about 500 less than on the corresponding day of the previous week. Buyers have not yet been forced to enter the market, although they are digging into their reserve piles.

Some mines owned by local houses are now idle, with the result that these producers have been forced into the market in order to keep up with their contracts. There are many inquiries but few actual orders.

Where it is impossible to locate immediately a shipment of classified coals, buyers are willing to take other coals, provided they are about as good in quality.

A few days of good demand would, it is thought, cut a big hole in the available tonnage and might result in stronger quotations. As conditions now stand it is believed that the quotations given are higher than the actual selling prices, so anxious are some producers and middle houses to get rid of their coals.

### BALTIMORE

A number of larger consumers are represented in the market and their purchasing is rapidly growing to be an emergency condition. Until the present there had been shown no anxiety on the part of many large consumers, but the fact that they are now eating into stocks has put a number of the larger purchasing departments on edge. The result is that the entire bituminous situation is growing tighter.

There is very little Pennsylvania coal offering. Some of the low-volatile group sold here at the opening of the week at $3.50@$3.75; high-volatile commands $3.75@$4. Even at these prices, which are showing indications of a still further jump, there are few offerings as most of the non-union mines which closed down recently still remain inoperative.

### PHILADELPHIA

The market seems ripe for almost anything. While there is no strong demand by the smaller buyers, yet when he does arrive in the market he is just a trifle shocked to find how prices have increased since his last inquiry. The inquiries are not many and the buyer has generally been able to get coal from somebody, but it is not going to take much greatly increased buying to arrive at the point where some consumers will have to be advised that they cannot have coal.

As it is now the highest quality coals are almost out of the market. Under these conditions it would be altogether possible for a runaway market to start over night. Prices hold fairly firm as compared with last week's quotations, and there are signs of higher prices plainly evident and at times actually quoted.

As showing this tendency to get better prices there is much offering of coal around among the brokers. There is one factor that tends to hold back prices and that is the arrival of Southern coal.

### FAIRMONT

There was hardly as strong a demand in northern West Virginia at the end of the third week of the strike. Prices, however, were on a much higher scale than at the outset of the strike. Railroad fuel buying was heavier. Ninety mines out of the 550 were operating at the outset of the fourth week of the strike.

### UPPER POTOMAC

There was comparatively little change in conditions during the third week of the strike. There were a few more mines at work than during preceding weeks. With a slight improvement in market conditions, additional mines are expected to resume operations at the solicitation of miners who have been in idleness for some time.

### CENTRAL PENNSYLVANIA

The fourth week of the strike ended without any material change in the situation. Both sides claim gains. The outstanding feature of the week was the injunction proceedings in Somerset County, instituted by operators to restrain the union from violence, intimidation and other illegal measures in organization work.

Production is largely confined to the mines in and about Johnstown and in sections of unorganized territory in Somerset County. A large number of empty cars are being stored in the railroad yards at Hollidaysburg, pending the settlement of the strike. The number of train crews on the Pennsylvania is being reduced.

# Coke

### UNIONTOWN

There appears to be a good market for coal with prices, however, below $3 even for the best grades. The impression prevails that large industrial consumers have placed a price limit upon coal and when they are asked to pay above that limit they will withdraw from the market and adjust their affairs as best they can. In any off event, the market here may be reported as firm but easy with no distress signs showing and any panicky feeling absent.

Such tonnage as is available can find a ready buyer at $2.50@$2.75 for Sewickly steam, $2.50@$2.75 for Pittsburgh steam and $2.75@$3 for by-product.

Coke has become a scarce article, especially foundry, with the result that grades have disappeared, much furnace coke commanding the price usually given foundry. That situation was brought about by the acute need of some foundries. Coke, consequently is quoted at $6.25@$6.75.

### CONNELLSVILLE

There has been no further spread of the striking in the past week, and a few of the strikers have returned to work. Taking the region as a whole, production of coal is approximately one-third of what it was in the latter part of March.

The best judgment is that the striking will not spread farther, but that the men will be slow in returning to work. There may be considerable straggling back in the next week or two, but in general the striking may be fairly strong a month hence.

The operators' policy at present is clearly and positively outlined, that men who desire to work will be given the fullest possible protection, and moral suasion will be employed intelligently, but there will be no strike breakers, evictions, etc.

The Steel Corporation's output of coal and coke is reduced much more than was expected, and vigorous measures have been taken to make up the deficiency. Until recently there have been heavy purchases of West Virginia and Kentucky coal, to supplement the stocks at the Clairton byproduct plant, which it is understood is now assured of a steady operation indefinitely.

The *Courier* reports coke production in the week ended April 22 at 47,900 tons by the furnace ovens and 17,080 tons by the merchant ovens, a total of 64,980 tons, a decrease of 33,830 tons.

### BUFFALO

The local smelting furnaces are increasing their activity and drawing on their own byproduct coke ovens for supplies, as the beehive plants are generally idle. Jobbers get next to no orders, so that prices are about nominal at $5.25@$5.50 for 72-hr. Connellsville foundry, $4@$4.25 for 48-hr. furnace and $3.50 for stock, at the ovens.

# Anthracite

## Orders Only for Bare Needs; Await New Cost Conditions

**Cold Weather in April a Windfall to Retailers—Pea and Buckwheat Still to Be Had from Storage—Sales Bring No Premiums.**

COLD weather during the latter part of April supplied retailers with some additional business. Orders were confined almost entirely to the barest needs to eke out the season, however, as consumers are convinced that the wise policy is to delay stocking until production is again resumed. The impending freight rate reduction also is delaying any buying for future needs.

Pea is still available from mine storage, as is buckwheat No. 1, but the larger domestic sizes have been cleaned up. The smaller steam coals are scarce but there is no strong demand even for those sizes that are available. Coal is still afloat in New York Harbor, but such as is sold is not commanding any premium.

### BOSTON

Except for two or three of the large producing companies who have stocks of odd sizes, practically all domestic has now been picked up and absorbed. While there has been more or less steady inquiry for what domestic sizes were available, there has been no snap to the market and only through constant pounding have the companies been able to place what coal they had.

Retail business has been extremely light, except for spells of cool weather that have obliged householders to keep their furnace fires.

### NEW YORK

With most of the domestic coals in boats wholesale dealers are finding it difficult to dispose of their holdings. Buyers are conservative and are not adding to their stocks unless it is absolutely necessary. Most of the large retail dealers are still well supplied.

Although conditions during the past 10 days have been such as to induce good fuel consumption and a depletion of retail dealers' stocks, the latter have not entered the buyers' market to the extent of taking coal at any price.

So far as the public seems to be interested there is no suspension and consumers are showing no anxiety over a possible shortage of coal later on.

The situation might be changed considerably were it not for the reports emanating from Washington that the I. C. C. is expected to lower freight rates by June 1. These reports and the possibility of a reduction in the mine price of coal cause many consumers to refrain from putting in their next winter's fuel supply.

Most of the coal being offered is quoted as "stock" coal and is afloat. Some middle houses are said to be quoting around $9 for stove and chestnut but there are no takers at those figures.

Demand for the steam coals has not picked up and quotations do not indicate the strength that should be expected under present conditions. There is some river barley being offered on a basis of $1.10@$1.20.

### BUFFALO

Demand is about as small as it has ever been at this time of the year and the sellers do not try to push it to any extent, unless they have independent coal and they have difficulty in getting the 75c. or $1 premium that they demand on the ground of heavy cost.

The supply of stove is very short and egg is not large, but the consumer does not complain, for he has enough coal. The retailer is complaining, of course, for he is mostly idle.

At this time of the year it is common to cut out the furnace and depend on natural gas, which will last till cold weather. So the anthracite situation is fully as easy as any.

No effort has been made to move coal by Lake. The shipping companies have a supply, but they prefer to hold it in the east at present. Unusual activity is shown in bituminous Lake receipts from Ohio ports, which go to the Buffalo furnaces. Already four cargoes have come in, showing that some source of that coal is good.

### ANTHRACITE FIELDS

Quiet prevails throughout the region. A few washeries that had been operating in the Southern field are now closed. There is a little washery activity in the vicinity of Scranton.

The opinion of the miners will have to change considerably before there can be any real attempt at settlement made by the union leaders in New York. With the men demanding an increase it would be suicidal for their representatives to suggest any concessions at the conference. Their present positions depend on securing at least the acceptance of the present wage.

### PHILADELPHIA

Temperature during April was below normal, and this has enabled the retailer to move considerable coal. All yards show evidence of decreasing supplies.

Buying has been moderate, but with yard forces already reduced some dealers report themselves as busy. This extra buying to piece out the season has also caused consumers to raise the question as to being supplied during the summer.

Retailers continue fearful that mining may be resumed and they will be left with high-priced coal on their hands, but as each day passes they are nearing a margin of safety and feeling a little easier.

The companies still have much pea coal for sale. Offices of the shipping companies are a picture of absolute idleness, and it is becoming a rule with most of them to have their employes take their usual summer vacations during May, in order to be prepared for resumption of work.

In the steam coals the companies are moving buckwheat in fair volume, as the demand is slowly increasing. There is very little rice and barley to be had now. There have been numerous offers of river coal of these last two sizes at prices around $2@$2.50 for the former and $1.50 for the latter, but with few sales made locally, as even in the times of greatest scarcity this material has found it difficult to make a market here.

### BALTIMORE

The only feature here has to do with the fact that several dealers have reported that they are virtually out of supplies. Fortunately, there is practically no demand and the only real danger lies in the possibility that the trade will be unable to catch up in the months to come on business which is usually put across during April and May. There is no run of hard coal to Baltimore at present from which the yards can be replenished, but no one seems to be worried over the outlook.

# West

### KANSAS CITY

Some demand for steam grades is being manifested in some quarters, by the companies who stored only about 30 days' supply, and who are beginning to see the bottom of their storage piles. No apprehension is felt, however, as there is ample supply of lump and nut and some mine run from small co-operative mines in Missouri and Kansas.

It has been a hard year for the retail coal man in this section who bought long ago at top price, went through an open winter and now is overstocked with coal costing a dollar above the present market.

### SALT LAKE CITY

Utah does not appear to be seriously worried about the strike in spite of the outbreaks of the last few days which resulted in a call for State troops. Most of the trouble is said to come from a small foreign element and most of the other miners are not only willing to work but are on the job.

The retail business took a big drop last week with the arrival of warm weather. The dealers of Salt Lake City were not stocked heavily and now, with the demand gone, they are happy that their yards are almost clear. They anticipate a fall of prices before they stock again.

### DENVER

The Colorado market remains almost undisturbed by the strike and its developments. Demand is light in most quarters and practically flat in the domestic trade.

More mines continue to reopen following the cessation, but in some cases they have trouble in marketing the product. The William E. Russell Coal Co.'s mine, near Frederick in the northern lignite region, is reported to have begun work again.

# Chicago and Midwest

## Western Kentucky Stirs Whole Midwestern Region

**Suddenly Finds Lively Cash Market So Up Goes Price to $2.75 with $4 in Prospect—Looks Like Jobber Speculation to Some.**

THERE is a great bestirring-to-life in western Kentucky. It was the one outstanding feature of the coal situation in the Midwest during the week. Following in the wake of the steel region flurry of two weeks ago, buyers went into western Kentucky —then practically closed down—and startled the whole field into action with cash offers for immediate delivery. The prices stiffened at once to $2.50@$2.75, mine run, and the operators are selling from day to day, believing they will soon be getting $4. "Some jobber speculation is figuring in that," said a big operator, and some others were ready to agree with him.

This particular coal has penetrated into almost every Middle Western market east of St. Louis but it has not caused any noticeable stir that far west. In that general region there is a slow and steady flow of hold-over fuel from the southern and central Illinois fields which have by no means exhausted their stocks at the mines, though screenings are practically gone. Prices on coal from the southern counties holds fairly firm at the old prices—$3.25@$3.65 for prepared sizes—but there is a tale here and there of shading on the part of people who think they can see the end of the strike in sight. Other quotations are shown in the weekly review.

Steel and railroad demand, that picked up recently, still continues in fair proportions but it is causing no excitement. Many queries from dealers have been coming in during the past few days indicating, possibly, a certain anxiety over a hoist in prices.

Some smokeless coals continue to reach the Chicago region but the volume is falling off noticeably. The price is slowly and steadily on its way up. Lump, at the end of the week had attained $3 and mine run was almost generally quoted at $2.

Anthracite in the Midwest region is exciting no interest and prices remain fairly firm at pre-strike levels. Egg is quoted at $7@$7.50, stove at about 25c. better and buckwheat, $3@$3.50.

The trade is awaiting with keen anticipation some announcement on freight rates. Although few men pretend to have any definite idea of what the commission will do to rates, they look for a reduction of at least 10 per cent. So many buyers consider present rates a great deterrent to purchasing, that everybody is keen for a decision at once by the commission.

### CHICAGO

Only a slight pick-up in trade was noticeable in the Chicago market during the past week. There were inquiries galore, and some of these came from the domestic trade in cases where retailers got the idea that coal may never be lower than it is now, but in general the apathy of April continued.

The principal interest centered in western Kentucky. This coal began coming this way in moderate quantities following a resumption of work by several mines of that field. Most of it is mine run selling $2.50@$2.75. There is practically no call for the lump and egg. The result in these sizes will not bring as much as mine run. One Chicago operator said he knew of western Kentucky lump coming into this market to be crushed and sold as screenings.

Only a little Pocahontas is seen here nowadays. The flow from the mines apparently is in another direction. However, quotations are climbing slowly. It is hard to find any screenings at last week's price of $1.75. The average is now close to $2. Lump is quoted $2.75@$3 with but little call.

### SOUTHERN ILLINOIS

In the Carterville field there is a gradual thinning out of coal held for commercial purposes, but railroad coal is still found at certain places in abundance. Somewhat similar conditions exist in the Duquoin, east Jackson County, and Mt. Olive districts. In the Standard field there are some domestic sizes but steam grades are pretty well cleaned up.

In all of the fields screenings have long ago been taken care of, as well as the smaller sizes of nut. Here and there a car of egg may be found and there is a fairly good supply, at places, of 2-in. lump and some 6-in. lump. Prices in this district range from $2.50 for the steam coal up to $3 for 2-in. lump and $3.25 for 6-in. lump.

### LOUISVILLE

Within the past 10 days the situation has been changed entirely in the Kentucky coal fields. Demand like a salmon run has finally set in strong. Jobbers are having trouble in placing orders, cash is talking, some concerns are failing to ship on low-priced orders and contracts, and buyers from other markets and big industrial consumers, are invading the fields, with cash in hand ready to buy quick.

Lake movement met with a short embargo. Steel demand is very good, and general industrial, utility and byproduct demand from the Northern and Central states is increasing with better prospects from the Eastern districts. Operating time in both the eastern and western Kentucky fields is increasing rapidly, and many small mines are sold up for a week or ten days and are not accepting additional business, while some of the big operators are putting out stiff prices, and holding for them, rather than be tied up with any cheap business.

During the past week eastern Kentucky has cleaned up most of the lump coal unsold on tracks, and is now asking $2.50@$2.75 with many concerns holding for $3 on mine run. Screenings and lump are bringing the same prices, as there are practically no screenings to be had. In western Kentucky operators are figuring $2.50@$2.65, mine-run basis, and will screen out screenings lump at the same prices.

### INDIANAPOLIS

Demand is much below normal but dealers and wholesalers here expect it to pick up soon. There is sufficient coal on hand to last Indiana sixty days. Prices have not changed. However, at the convention this week of the Indiana Retail Coal Merchants' Association, many speakers urged members to buy now before the price jumps.

### ST. LOUIS

A little domestic demand appeared during the past few days on account of rainy and chilly weather. But purchases are small and nobody is stocking.

Locally steam is slow. There is a little call occasionally for screenings, but that is all. A little Kentucky coal is moving in at about $2.10 for mine run and $2.25 for 1½-in. lump, with nut at $2.25@$2.35. The quantity is small with the exception of a few hundred cars of lump and mine run bought by the Frisco as an emergency precaution.

It is understood that the Union Electric Light & Power Co. went in the market for about 20 cars per day of West Virginia coal to come forward for the next thirty days. Other than that the purchases have been for a few cars at a time and business has been scattered and not worth while.

### WESTERN KENTUCKY

During the past week many mines that had been down resumed operations, and more are coming in each day. From about 1,100 cars on track in early April, there are now about 300 cars of unsold coal, practically all lump. Some mines are operating full, filling contracts and orders accepted at lower prices. Other mines are holding firmly for $2.50@$2.65 and higher. The market may reach $3 before the end of the first week in May and possibly keep on going.

Mines on the Illinois Central started advancing before those on the L. & N., but are all advancing now as a result of better demand from North and South. Tonnage is moving to Wisconsin, Illinois, Missouri, Michigan, Georgia and Indiana. It is also reported that inquiries have come from as far as Pennsylvania.

# Canada

### TORONTO

Dealers report a moderate demand for anthracite and sufficient supplies on hand to meet requirements for some time. Consumers are only buying from hand to mouth and few large orders are being received. Some bituminous coal is coming forward from the West Virginia mines, in quantities about sufficient to supply the light current demand. Quotations for anthracite are unchanged, but bituminous prices are unsettled with an upward tendency.

# Northwest

## Strange Signs of Life Quicken This Region

**Demand Still Light But Inquiries Grow Numerous—May Start Counter-Flow of Dock Coal Eastward First Time in History—Most Prices Weak.**

A QUICKENING of industrial demand, so slight as to be barely noticeable, has begun to make itself felt. Iron mines and blast furnaces near the Head-of-the-Lakes show signs of activity. Demand is still dull, however, and prices are soft on everything except screenings. Figures on that class of coal are firm only because screenings are scarce, and not because anybody wants to buy much. Domestic demand has about died out.

Coal by vessel is flowing into the Northwest ports now in a stream only slightly more than half as strong as is normal. Some of the docks have inquiries from Middle Eastern consumers which may result in dock coal moving eastward for the first time in history.

### DULUTH

Duluth may soon be "Carrying Coals to Newcastle." Inquiries have been received by local docks for coal to be delivered to Lake Erie ports and to Chicago. This is unprecedented. The inquiries came from two large steel manufacturing concerns.

Three cargoes of coal have already arrived at Duluth harbor; the first to come in through the ice field in Lake Superior this year. Two more cargoes are reported on the way. These latter cargoes are consigned to The Zenith Furnace Co. of Duluth, and will permit that concern to run throughout the remainder of the summer.

Noticeable increase in the inquiry for coal has been evident here within the last few days from manufacturing concerns. Announcement by the Minnesota Steel and Zenith Furnace companies that their blast furnaces would be blown in, and that the manufacture of steel would be resumed here, has stimulated trade generally.

Inquiries from various parts of the Northwest have been received within the last few days. Two iron mining companies on the Mesaba Range will start operations early in May. This action has not as yet been reflected in increased shipments from the docks. Anthracite is moving far below normal. Buyers generally are expecting a drop in hard coal prices.

Bituminous coal is still selling at $7 for lump with some dock men willing to shade 50c. for large orders. The only indication that prices are on the make comes through the decreasing number of docks which are willing to shade the list price. The outlook for the Head-of-the-Lakes may be summed up as optimistic for increased trade.

### MINNEAPOLIS

No one seems to mind the strike. Wholesalers and retailers say buying is all in small quantities, obviously for immediate needs. Retail orders are down to very small amounts. Despite this there is constant reference in the daily press to threat of a coal shortage. Just why, is unknown. There is an ample supply of coal on the docks, and more on track.

There has been no effect upon prices, aside from a strengthening of screenings, which are in lesser supply because there is less shipment of the larger sizes and so less screenings produced. The firmer screenings prices cannot be laid to the strike. So instead of there being any strengthening of prices on regular sizes of coal, the tendency is the other way. Some company prices are not up to list on dock coal and others complain they cannot get any business because of this cut. And this is in the face of a strike which is charged with having been brought about for the purpose of forcing higher costs on coal now on hand!

Industrial activity shows only a slight gain. On the other hand, there is a reduced consumption of those industries which have water power, since the high water has given them the maximum water power possible.

### MILWAUKEE

Apathy rules the coal business both locally and in country trade. This condition, dealers expect, will continue until some basis is reached as to future prices. The old level of prices is strictly maintained. There is plenty of coal, both hard and soft, to be had except soft coal screenings. This grade is very scarce and tight. Western screenings are selling at $3 per ton.

Thus far this season 10 cargoes of soft coal, aggregating 80,600 tons, have been unloaded at the docks, and three more cargoes are booked to arrive in the next two days. Last year up to this time 9,000 tons of hard coal, and 109,944 tons of soft coal, or 118,944 tons in all, had been received by this time.

Coke is being offered with a guarantee that present prices will hold until July 1, the difference to be refunded if the price should drop before that time. Coke is being delivered at $11.50 for egg and nut, and $9.50 for small nut. This is the price established in March when a cut of $2 was made in order to move stocks.

# New England

## Asking Prices Slightly Up, But Distress Sales Continue

**Oversupply in Reserve Emphasized by Continuance of Textile Strike—All-Rail Receipts, Especially from Central Pennsylvania, Light — Sales at Prevailing Rates Difficult.**

THE trend of the Hampton Roads market is upward and asking prices in New England reflect this to a lesser degree. On the other hand, this market has such an oversupply of coal in reserve and waiting to be sold that the purchaser can still obtain tonnage on a "distress" basis. The textile strike continues and there can be only one result to stuffing this market until consumption has eaten into the heavy stocks of industrial consumers.

All-rail receipts, especially from central Pennsylvania, have been very light. Prices for these coals have been increased in other markets and sales in New England at the present quotations are almost out of the question.

There is no denying the firm trend upward that is now in progress at Hampton Roads. So many New River operations have been shut down through efforts to extend union influence that increased inquiry has been thrown to the Pocahontas shippers. Certain agencies have already made $2.25 per net ton their asking price, a figure that would mean $5.33 at the Roads. While the current spot market has sagged a little as to price at this writing, $5 flat is now a fair quotation for Navy Standard, 15c. better than a week ago.

At this end, however, especially for Inland distribution, the market has been affected by a temporary oversupply to such an extent that prices have receded, rather than advanced. There is still distress coal that factors are forcing on the market and on-car prices have been made as low as $5.75 per gross ton to move tail-ends. The textile strike continues and there seems little object in further stuffing the local market here until consumption has eaten into the very heavy reserves that are on hand with most consumers.

Marine freights, Hampton Roads to Boston, are easy on the basis of 90c. for large vessels and barges, with smaller bottoms at $1 or more, according to draft of water and handling facilities. From New York to Boston small box barges can easily be had at $1 flat. In every direction, there is a surplus of tonnage.

The keen competition for steam coal business is reflected at retail in Boston. While the asking price on high grades is $8.25 per net ton delivered, actual prices run down all the way from $8 to $7 flat on special short-term contracts. From the appearance of things here one would never suppose mining had been suspended in large numbers of operations now for 30 days.

# Eastern Inland

## Scarcity of Tonnage Believed To Presage Lively Market

**Stocks Shrink with Industrial Improvement—Upward Tendency in Prices and Expected Freight Cut Delay Buying—Lake Business Shows Progress.**

STOCKS are going down more rapidly as the industrial situation improves. There is no great spot demand as yet except for byproduct coal, but tonnage available is so scarce that shippers are anticipating a lively market in the near future. Quotations show an upward tendency and this coupled with the expected reduction in coal freights is causing consumers to delay purchasing, utilizing their reserves in the meantime.

Lake business is progressing although the tonnage moved is almost entirely on a spot basis. Non-union producers are sending heavy supplies to the lower ports and shipments from Kentucky were so heavy that temporary embargoes were placed against certain mines last week.

### CLEVELAND

With general business activity increasing and stocks of coal diminishing the market is beginning to show more signs of life. Inquiries from steel mills and general industries are increasing and railroads are buying. Little coal is moving from dealer to consumer, however, because it is not available.

Developments are showing that many industrial users miscalculated before the strike began. The chief trouble with their judgment was that they failed to foresee the extent of the recovery of business which is now appearing. Many plants in March had sufficient coal to run them for 60 days or more after the strike began at the rate of operations then prevailing. Since then sales have picked up and stocks are melting more rapidly than had been expected.

Prices are not bounding upward but operators look for higher figures before the strike is over.

No real resumption of output is believed possible before June 1. In the meantime an interesting development has been the unloading of vessels at lower ports to meet the requirements for fuel needed here.

### COLUMBUS

With practically all of coal on track cleaned up there is a better demand for all grades except domestic. Apparently the effects of the strike are beginning to show

Buying of byproduct coal is the best feature of the market. A considerable quantity of Pocahontas is being bought by plants in the Buffalo section to be shipped to the Lake and transshipped by water to destination.

Prices have advanced materially. This is especially true of mine run which is now ranging at about the same level as lump. Dealers as a rule are not taking on stocks, being interested more in cleaning up. Retail prices have advanced slightly, but not as much as prices at the mines.

Indications point to a better Lake Trade as inquiries from that source are more numerous. A considerable tonnage on the upper docks is now being moved. Prices for Lake tonnage are very much mixed up and few contracts have been placed.

### PITTSBURGH

There is nothing new in the union strike. Mines are all closed, one exception being the strip-mined coal on the Panhandle, which remains in the market with the usual production. There is no Westmoreland coal in the market, the district being closed by non-union strikes.

Connellsville coal has been continuously on the market since the strike started. While production in the general Connellsville region has been cut down by nearly two-thirds, the offerings have been of no small volume.

Prices at first rose rapidly as some large consumers were heavy buyers. A week ago these buyers began to curtail their purchases. One withdrew entirely and after a few days returned as a buyer of prompt deliveries at its own prices. As a result of the lessened demand rather than on account of there being increased production, the market has softened, and Connellsville steam coal is now quotable at $2.50@$2.75, and byproduct at $2.85@$3, with most transactions at $2.85.

Various reports that the Connellsville strikers are already weakening, and will very soon begin returning to work in large numbers, should be accepted with much reserve. The striking has not spread in the past week, but most of the men are likely to stay out for quite a while. There will be no strenuous action or drastic policy on the part of the operators in meeting the strike, and no strike breakers, evictions, etc. The strikes will be allowed to die out as they are certain to do in time. The U. M. W. has never had a foothold in the Connellsville region and there has been no big strike there since 1894.

### EASTERN OHIO

An outstanding feature of the situation is the announcement that two cargoes of Lake coal, being held at Lorain, are to be unloaded to meet a demand in that quarter from certain steel mills and railroads. Other steamers may likewise be divested of their cargoes.

However, barring isolated cases, an abundant quantity of storage fuel remains well distributed throughout this section. The general market is quiet; demand is at a standstill and inquiries are few. While it is true that the larger users are willing to place orders at attractive prices looking to augmentation of their stocks, yet there is no particular inquiry for that purpose.

Stripping mines continue to operate. Their production has been impeded somewhat during the week by rains, but the volume of output is between 15,000 and 40,000 tons per week.

Most of the Lake cargo coal is being shipped from eastern Kentucky and West Virginia to ports of Toledo and Sandusky, respectively. Accumulation of coal under load at Toledo terminals has resulted in temporary embargoes being placed by the B. & O. against coals from certain Kentucky mines.

It is difficult to crystallize spot prices into what might be considered a range of quotations because of the various grades from the different fields and on which this market has not heretofore been dependent. It may be said, however, that prices have stiffened.

Receipts of bituminous coal at Cleveland continue about 50 per cent. of normal requirements, total receipts for the week ended April 22 amounting to 715 cars, 583 cars to industry and 132 cars to retail yards.

### BUFFALO

The coal trade refuses to be even sensational. From the fact that salesmen from mining centers are rather numerous it would appear that the output is rather in excess of the demand, but both are very small and promise to continue so. Consumers are just beginning to draw on their stock piles, so the strike has accomplished little as yet.

More non-union men have joined the strike than was expected, but on the other hand the wagon mines are opening fast. That class of coal cannot be produced cheaply as it could in ordinary rail mines at moderate wages.

So it is hard to say what will be the outcome. Some coal is coming in from West Virginia and Kentucky but it has to sell high on account of the heavy freight rate.

With some coal selling up to a dollar higher the bulk of what little is moving goes at about old prices: $2.60 for Youghiogheny gas lump, $2.50 for Pittsburgh and No. 8 steam lump, $2.25 for Alleghany Valley and other mine run and $2 for slack.

### DETROIT

Some wholesalers and jobbers are inclined to ascribe a slight improvement in the demand to the efforts of steel companies to add to their stocks of coal. There is, however, not much change, as regards the general class of industrial consumers.

Among some of the jobbers criticism is heard of certain mine selling-agencies which are accused of reporting their inability to comply with agreements for shipping coal, which the jobbers say was purchased at prices slightly lower than are now obtainable.

Nearly all sizes of West Virginia and Kentucky coals are now being quoted $2.50@$2.75. Smokeless lump and egg is $2.75@$3, mine run, $2, and nut, pea and slack $1.75@$2.

### NORTHERN PANHANDLE

Non-union mines continue to operate despite the efforts of the United Mine Workers to close them down and despite a good deal of intimidation on the part of the union. There are from twelve to fourteen mines in this district in operation and production is not far short of 50,000 tons a week. There is a brisker demand for mine run and prices are on a higher level.

# Cincinnati Gateway

## Asking Prices Boosted; Market Running Wild

**Quotations Show Wide Range, Due to Curtailed Supply and Heavy Buying —Lake Buyers Active—Cars Scarce in Hazard and Bell Counties.**

PRICES are spread over a wide range. Wholesalers and jobbers have been boosting asking prices and the market has been running wild. The shortened supply and heavy buying orders are responsible for this condition. Lake buyers have been so active that the L. & N. was forced to restrict the movement to Lake Erie ports for a few days. A car shortage has developed in Hazard and Bell counties. Kentucky producers are now selling most of their coal on a mine-run basis, ranging $2.75@$3.

Many mines are sold up for May but while production of free coal is increasing there is no tendency toward any price reduction. Smokeless values have been enhanced by the high-volatile activity.

### CINCINNATI

There have been some large buying orders placed here. The Pennsylvania is credited with having purchased 1,200 cars of steam coal within the past week. The rush of Lake buyers has crippled the carrying capacity of the L. & N. and restrictions were placed upon shipments to Lake Erie ports the whole of the first part of the week. Companies in Logan, Thacker and Williamson fields have more free coal to offer, but it looks reasonable that this tonnage will be forced to the higher price level. Quite a number of mines are sold up for May which is another means toward the upward trend in price. Quotations are shown in the Weekly Review.

Smokeless business continues to better itself as a reflection of the activity in the high-volatile market. However, a greater curb is held on the price question. Screenings are now on the same basis as mine run with screened nut taking a 25c. premium over the two. There is also a price distinction drawn between the egg and the lump, the latter being 25c. higher in price on the ton.

While a few householders are taking in supplies this retail movement is only seasonal and normal. Smokeless lump is $7.50@$7.75, mine run is $6.50@$6.75, which is the same price for bituminous lump. The range on slack is now $5@$5.50.

### HIGH-VOLATILE FIELDS

#### KANAWHA

Approximately 5 per cent of the mines are operating, despite the fact that this is a strongly organized field. Many miners are asking for an opportunity to work and when conditions warrant it producers believe that it will be possible to operate a great many more mines. There is a somewhat better market for steam and byproduct, the principal demand coming from the East.

#### LOGAN AND THACKER

All production records are being broken in the Logan field owing to the heavier demand. Nearly all mines are in operation and producing to capacity. More fuel is being shipped to Eastern markets although the bulk of the output is going to Western markets. Miners showing no inclination to cease work since earnings are on a larger scale than they were before wages were readjusted.

Production in the Williamson field is being maintained at more than 121,000 tons a week as against 82,000 tons for the corresponding period of 1921. The only source of loss so far is "no market" and that is affecting production to the extent of 30 per cent of capacity. Nearly all mines are in operation and shipping coal to Western markets.

#### NORTHEASTERN KENTUCKY

There was a further increase in production in the week ending April 22, as a result of a better demand. Unbilled loads held on sidings for a time have disappeared entirely. Not only is there a better general demand for steam and byproduct but the Lakes are also providing an outlet. Concerns dependent upon the Pennsylvania fields are securing some of the tonnage of this district. Prices have stiffened materially.

### LOW-VOLATILE FIELDS

#### NEW RIVER AND THE GULF

There are evidences of a gradual return to normal conditions in the New River field although production is still much below the average observed before the strike. There were more mines in operation in the week ended April 22 and in the days immediately following than during the period ended April 15, five or six companies having resumed operations. There is a much better demand at Tide and in Inland East markets and prices are on a higher level.

In the Winding Gulf district there has been a reaction against the United Mine Workers. Production continues at about 23,000 tons a day or about 3,000 tons a day under normal. More men are at work and there is a better market with much more coal flowing to Tidewater and to Inland East markets.

#### POCAHONTAS AND TUG RIVER

At no time during the present year has productoin been on a larger scale in the Pocahontas region. The average daily output is not far short of 75,000 tons. Heavier production is due to a better market in the East and particularly at Tidewater. Prices are on a little higher level. The strike is not affecting mining conditions in this district.

Tug River production was not far short of 100,000 tons in the week ended April 22 under the stimulus of a better demand and with steel mills especially seeking more coal. No change has been observed in labor conditions, virtually all of the 59 mines in this region being in operation.

#### SOUTHEASTERN KENTUCKY

Demand for all grades improved considerably during the past week. Harlan and Pineville are filled with outside buyers and a great deal of bidding is going on. Prices have advanced to where best Harlan and Straight Creek mine run is in good demand at $2.50@$2.75. Production continues to lag, although it is better than at any time since the strike began. There are a great number of mines working without any agreement of any kind and in some of these camps the union charters have been surrendered.

A good deal of labor is drifting into the field from Alabama and Tennessee and some from the North. None of the mines that are now operating have lost any ground to the union, but on the other hand, report that men are gradually drifting back.

# South

### BIRMINGHAM

There is no change to be noted in market conditions. The trade is very quiet, inquiry light and new business of small volume. Industrial operations have not revived sufficiently to create an increased or more diversified demand than has existed for some time. There has been no inquiry as yet outside the territory regularly served by this district.

Domestic coal buying is slow and dealers are showing no disposition toward haste in making contracts for next winter's supply, although in the aggregate a fairly good tonnage has been contracted for in the high grades.

Steam prices have not changed. Quotations on domestic grades for May are as follows, per net ton mines:

| | |
|---|---|
| Big Seam | $1.95@$2.10 |
| Carbon Hill | 2.20@ 2.45 |
| Cahaba | 2.95@ 3.45 |
| Black Creek | 2.75@ 2.95 |
| Corona | 2.45@ 2.70 |
| Montevallo | 3.70@ 3.95 |

Production is showing a decline on account of the falling off in the amount of railroad fuel being taken. The Louisville & Nashville has taken practically no coal in the last three weeks, while the Frisco, Southern and other lines are far below the quotas. Furnace companies are increasing production steadily, which will partially take care of the loss in output at commercial operations.

### VIRGINIA

Production ranges from 60 to 70 per cent of potential capacity. In the Clinch Valley district served by the N. & W. about 145 cars a day are being produced. There is a heavier demand for mine run but not for domestic grades. Prices have stiffened on mine run to $2@$2.50. Some industries which have been deprived of their regular supply through a suspension of operations in other fields are seeking coal in this territory.

# News From the Coal Fields

## ALABAMA

The spur track of the Central of Georgia Ry. from McComb's Switch to the new Overton mines of the **Alabama Fuel & Iron Co.** has been completed and coal is now being transported over it. Sidetracks are also being constructed to the mine of the **County Coal Co.**, in the same vicinity.

Birmingham was chosen as the 1923 meeting place of the **Southeastern Coal Merchants' Association**, which recently adjourned its sessions in Atlanta. C. M Farrar, Augusta, Ga., was elected president.

## ALASKA

Plans have been completed for the **Lake & Export Coal Corporation**, of West Virginia, to examine the Chicaloon Mine in Alaska with a view to leasing the property or entering into a working arrangement with the Government. The Navy Department is very anxious to have this property operated so as to insure an independent supply of Navy grade coal in the Pacific. Maj. Lewis Hornberger is en route to Alaska with a party of coal mining engineers to examine the property.

## COLORADO

Coal mining may take on a decidedly bigger aspect if the Moffat tunnel measure, now considered by the Colorado legislature in extraordinary session, is passed, and the counties directly affected bonded to insure construction of the big bore through the Colorado Rockies. The tunnel, if approved, will not only save considerable mileage, but insure transportation facilities the year round for mining interests in Routt and Moffat counties.

## ILLINOIS

**J. B. Sanborn**, of Chicago, addressed the Chicago Wholesale Coal Shippers' Association at a luncheon recently, urging the men of the trade to adopt better credit reporting methods by cooperative action. Colonel Sanborn publishes the Coal Dealers' Blue Book.

**H. C. Perry**, of Hillsboro, general manager of the Indiana & Illinois Coal & Coke Corporation, was in Chicago on company business recently.

**The International Railway Fuel Association** has announced an addition to the program of its convention to be held at Chicago, on May 22 to 25. F. G. Lister, mechanical engineer of the El Paso & Southwestern R.R. will read a paper on "The Effect of Circulation on Locomotive Boiler Efficiency."

**J. N. McCabe**, vice-president of the Gruschow-McCabe Coal Co., of Chicago, is now traveling the Eastern coal fields.

**W. A. Brewerton**, of the Chicago office of the Sangamon Coal Co., was in Springfield recently.

Two mines owned by the **Donk Bros. Coal & Coke Co.**, of St. Louis, probably worked their last day March 31, just before the strike started. Definite plans have been made by the company to abandon mine No. 1 at Collinsville, a new mine which has been opened up at Edwardsville only a few months ago, practically taking the place of this mine. Mine No. 3 of the company located at Troy, will probably be shut down and abandoned.

**Jonah Flavel**, general superintendent of two mines at Duquoin, owned by the Jewel Coal & Mining Co., of St. Louis, is taking advantage of the strike by taking a vacation and fishing trip.

**The Soper Coal Co.**, which at one time operated several mines in Perry County, has filed notice of dissolution with the secretary of state. Mines at Cutler, Pinckneyville and other points were operated by this company until about 3 years ago, when they were sold to another company. Headquarters of the concern are located at Mt. Vernon.

**The South Fulton Coal Co.**, Astoria, has been incorporated with capital of $200,000. The company will operate a nearby mine. The incorporators are John Long, James M. Curless and Howard L. Schaefer.

**J. D. Zook**, vice-president of the Nason Coal Co., **Garner Williams**, general superintendent, and **C. W. Smith**, chief engineer, have recently been in Virden inspecting the North Mine, owned by the Nason company. The company is now erecting a steel tipple to take the place of the old one which has been dismantled. The company will also improve the North Mine with substantial, permanent buildings and modern machinery above ground and with heavy steel rails, enlarged working space and other improvements at the bottom.

**C. F. Gleason**, superintendent of the Scott, Smith Coal Co. mine at Duquoin, has resigned his position with the company. His future plans are not known and his successor has not yet been named.

**The Peabody Coal Co.**, has purchased the Cambria mine of the **Carterville & Big Muddy Coal Co.**, near Carterville.

**The Bell Union Coal & Mining Co.**, with main office at Philadelphia, announces the opening of a sales office at 985 Old Colony Bldg., Chicago, in charge of Herbert A. Hatfield, formerly with the Astel Coal Co. and the Taylor Coal Co.

**The O'Gara Coal Co.** has announced that it will start the erection of a modern two-story office building in Harrisburg. The company controls a number of mines through Harrisburg. The former offices of the company at Harrisburg were destroyed in March by fire. The new building will cost between $40,000 and $50,000.

## INDIANA

R. J. Smith, manager of the **Deep Vein Coal Co.**, at Princeton, recently signed a petition before the city council of that place, asking the right to construct switches from the Southeastern R.R. tracks to a new mine location. The petition was granted. The new shaft, it is stated will be concreted down to the rock. It is planned to have the mine working by November 1.

**Lawrence Lyons**, director of Indiana state highways, and **George J. Nattkamper** of Terre Haute, were at Princeton, recently in consultation with directors of the Princeton Chamber of Commerce. It is understood that they propose to construct a traction line from Princeton to the coal fields east and southeast of that city. The plan is that the line would be a coal carrying road and that it would also operate miners' trains. No definite action was taken, the Chamber of Commerce directors and visitors going over the general situation.

## KENTUCKY

**The Calhoun interests**, which operate the Frankfort Coal Elevator Co., mines near Beattyville, and a fleet of barges and towboats to handle river coal transportation, having recently secured lease on property at Louisville for a coal transfer station for rehandling from water to rail, have put in temporary equipment at that point, and secured a lease on property above the falls for a second terminal, planning another on the north side, for New Albany and Jeffersonville, Ind., handling. The Calhoun interests are behind the formation of the Inland Waterways Co., and their equipment will be the start of a promised large line of river equipment to be owned by the new million dollar company. This company has in its organization as directors, James P. Barnes, of the Louisville Railway Co., and Harry Reid, of the Interstate Public Service Co. This will mean considerable distribution at Louisville and into southern Indiana by interurban connection, and probably freight street car connection, from terminal to outlying plants and country yards. The interurbans may also whip the railroads into aiding the terminal idea, which heretofore they have fought.

Amended articles have been filed by the **Proctor Coal Co.**, Williamsburg, reducing its capital stock from $300,000 to $200,000.

A visitor in the Harlan field during the latter part of April was **James O. Watson**, of Fairmont, who is interested in a large tract in that section.

What appears to be a new market for Kentucky coal was opened up through the coal strike, and brought about the first shipment of Hazard coal in New York State. The rate on coal from the Central Pennsylvania fields to Buffalo is $2.51 and with the Lake rate, rail, to Toledo at $2.11 and 8½c. handling charges plus a Lake rate of 32c. cargoes could be laid down in Buffalo at just ½c. higher than they could from the usual source of supply.

Some big things are in prospect on the Ohio River at Louisville, which will have considerable effect on the coal trade. The Louisville Gas & Electric Co. has chartered a subsidiary as the **Louisville Hydro-Electric Co.**, and plans to harness the falls of the Ohio River, under a plan whereby the Government is figuring on rebuilding higher wickets and dams. At present this company is a large consumer, owns a mine at Echols, and twenty-five steel cars for moving its fuel from the mines to Louisville, but for some time past has been buying coal on the open market, finding this plan cheaper than to produce its own coal under existing conditions.

**The New Duane Coal Co.** has been organized in the Hazard coal field by A. S. Petry and others, with $50,000 capital after purchasing the plant of the Duane Coal Co. on Lott's Creek, a new field in Perry County. The new company will take over the plant and make a number of improvements. The new work will entail an expenditure of several thousand dollars.

The **Virginia Coal & Coke Co.** has purchased a large tract of coal land in the Hazard coal field from the **Kentucky River Coal Corporation.**

## MINNESOTA

A labor organization of Minneapolis has filed objection with President Harding against the appointment of **Judge John F. McGee**, of Minneapolis, to the position of federal judge, on the ground that as a member of the public safety commission of Minnesota, he was unjust and offensive to organized labor. He was equally offensive to the coal trade, when acting as fuel administrator, but its members have not attempted to prevent his appointment to the federal bench, if there should be any danger of that occurring.

## MISSOURI

The heavy rains have formed a large lake on the mine property of the **Callaway County Coal Co.**, south of Fulton. This is a strip mine, and not only the coal but the stripping machinery is covered with water. About ten feet of the water can be withdrawn by dynamiting the sides of the embankment, but the remainder will have to be pumped out.

Litigation extending over a period of four years and involving $138,000 has just been settled by Judge Fred Lamb, of Salisbury, who directed a verdict in the case of **Martin & Hubbell Coal Co.**, of Kansas City vs. the **Ray County Coal Co.**, of Richmond, the decision being in favor of the latter firm. Suit was first brought against the Ray County company for alleged breach of contract for the delivery of the output of the Richmond mine, from May 1, 1916, to July 31, 1918.

## NEW YORK

Aimed to be a business-developer, the **New York Central Lines** have issued and are distributing gratis to shippers the largest railroad reference book of its kind ever published. It contains the names of more than 50,000 individual concerns on their rails, classified by commodities, localities and railroad facilities. Commercial and kindred business organizations, with the names of their presidents and secretaries and number of members, as well as all banking institutions located on the New York Central system, are alphabetically listed. Requests for copies may be sent direct to the Publicity Department, New York Central Lines, Grand Central Terminal, New York.

General offices of the **Iron Products Corporation** and subsidiary concerns are now located at 41 E. 42 St., New York City. Among the companies affected by the move are: **The Central Foundry Co., Central Iron & Coal Co.**, and the **Chattanooga Iron & Coal Corporation.**

**The Virginia Iron, Coal & Coke Co.'s** report for the first three months of this year shows gross earnings of $65,620, as compared with $633,738 in the same period of 1921. Net loss after interest and taxes was $81,047, against a net income of $471,356 in the same period of 1921.

**Peale, Peacock & Kerr** announce the removal of their New York offices to No. 1 Broadway.

**Pilling & Co.** has moved to 2 Rector St., New York City,

**The Roebling Coal Co.**, has moved to 90 West St., New York City, telephone, Rector 6158.

**J. W. Galloway** of New York will again head the **Maryland Coal Co.**, a Maryland corporation, having been elected at the recent annual meeting of stockholders. The following board of directors was also re-elected: J. W. Galloway, New York; John T. Manson, of New Haven, Conn.; Gordon Smith of Baltimore, Md.; George Paull of Pittsburgh, Pa.; George Hewlett of New York; Nathan Todd Porter, Jr. of New York, and J. E. McGowan of New York.

## OHIO

Exceptions have been filed by attorneys with the common pleas court against the payment of any coal awards in the contested cases of coal purchased by the state under methods which were held to be illegal. At that time State Treasurer Tracy was named as master commissioner to investigate the question of payment on coal contracts which were held illegal but upon which coal deliveries had been made. He has recommended the payment of $77,000 which is a reduction of more than $20,000 in the original recommendations. The attorneys representing M. E. Thrailkill, who brought the original suit, object to payment of any sum.

**The Southern Ohio Coal Exchange** reports about a dozen stripping operations in Jefferson and Harrison counties going with a production of about 450 cars or 9,000 tons weekly.

**Bids will be opened May 22** by the Board of Education of Columbus for approximately 10,000 tons of 1¼-in. lump coal, for the various school buildings. The coal is to be delivered during the summer months.

Judge John Weld Peck in Cincinnati has allowed the **Houston Coal Co.** the right to appeal the suit against the Government to recover damages for coal that was seized by the Navy and on which the company claimed the difference between the amount allowed and the market price of the coal at the time of the seizure. Judge Peck had dismissed the suit on the claim that in accepting the full allowance the company had concluded the transaction. About $314,000 is involved.

Lake Bobbit, of Charleston, who was in Cincinnati recently stated that it was the intention of Vice-President Quin Morton to oversee the local office of the **Ft. Dearborn Coal Co.**, for the time being and that he would put in his time between Chicago and Cincinnati. Mr. Bobbit was on his way to Chicago where he was to supervise certain of the company's affairs there.

Damages of $100,000 were caused when after a night of pouring rain the **Brettell Coal Co.'s** tipple between Steubenville and Mingo Junction was swept 200 ft. from its position on a hillside, to the railroad tracks below, along the Ohio River. Four automobile trucks, a touring car, and a large retaining wall, were swept along by the tipple, which dumped its two hundred tons of coal on the tracks.

The defendants in the complaint filed by the **Ohio Mining Co.**, and 22 other coal mining companies in the Hocking Valley against the Hocking Power Co., the Athens Electric Co., and the Southern Ohio Power Co., alleging high and unreasonable rates for electric current, have filed a motion to dismiss on the grounds that they are not public utilities. This question is now being considered by the commission and briefs have been filed by both sides. Until this question is decided the matter of the reasonableness of the rates will not be taken up.

## PENNSYLVANIA

Contracts have been let by the **Monarch Fuel Co.**, of Latrobe, for the erection of 53 houses to be built at Rural Ridge, Allegheny County, work to be started shortly. The group of houses is to be built in connection with the Monarch company's new mine development east of Russeltown, and will comprise the first unit of a modern mining village that the coal company will ultimately develop.

The home of Thomas Kelly, employed as an electrician at the **Garfield-Smokeless Coal Co.**, was blown up recently. Simultaneously the electrical equipment of his employers' workings at Garfield were wrecked by persons still unknown. The company employs non-union workmen, but some of the men there have joined the ranks of strikers, union leaders said.

Among the companies recently incorporated are the following: **International Anthracite Mines, Inc.**, Scranton, capital stock, $15,000. Incorporators: E. E. Wright, West Toronto, Can.; Lovell G. Mickels, Montreal, Can., and Ralph W. Rymer, Scranton. **Pequea Coal Co.**, Philadelphia, $50,000. Incorporators: Frederick Shoff, Lancaster; William J. Faux and Archer C. Tunis, Philadelphia. **The Harley-Hankinson Co.**, Clarion, $30,000. J. E. Wolfe, Clarion, is treasurer. Incorporators: J. D. Hankinson, Utica, N. Y.; Richard Robbins, Summerville, and C. F. Heath, Franklin.

**The N. J. Fyock Coal Mining Co.**, of Windber, has been incorporated. The capital stock is $200,000.

**The Beekman Coal Mining Co.** has been incorporated under Delaware laws. Headquarters will be at Ransaytown; capital, $75,000.

The Co-operative Department of Mining Engineering of Carnegie Institute of Technology, Pittsburgh, announces the offer of **two fellowships in mining research and two in teaching and research**, in co-operation with the Pittsburgh Experiment Station of the United States Bureau of Mines. Fellowships are open to the graduates of universities and technical schools who are properly qualified to undertake research investigations. The value of each fellowship is $750 per year of ten months beginning July 1st for the position of Research Fellow and August 1st for Teaching Fellow.

**A State charter has been granted to the People's Fuel & Supply Co.**, of Red Lion. It will mine coal and manufacture coal products. Its capital stock is $100,000 and its incorporators are Benjamin S. Sentz, Samuel A. Roseman and Samuel C. Craley, Red Lion. Notice has been filed by G. C. Woodward, treasurer, Philadelphia, of an increase in the indebtedness of the company from nothing to $200,000.

**The McGregor Coal Co.** has notified the State Department at Harrisburg that it has increased its capital stock from $75,000 to $110,000. Perry L. Wingert is president and the company operates in Jefferson County.

**The Keystone Fuel Corporation**, Pittsburgh, has been chartered with capital stock of $25,000; treasurer, Charles R. Anthony, Pittsburgh. Incorporators, J. B. Nicklas, Jr., J. H. McClure, and H. E. Maser, Pittsburgh.

The Pennsylvania Supreme Court has confirmed the findings of Judge Henry, of Lebanon County, in releasing for the use of the **Thomas Colliery Co.**, approximately 450,000 tons of coal under the borough of Shenandoah. The Home Brewing Co. is declared to have no right to an injunction restricting the mining of coal, but this is no bar to any action for recovery of damages which might arise from such mining. This is the finish of a case which has long interested Schuylkill County. It was originally brought against the Thomas company, and the original injunction was granted by Judge Marr in November, 1904, the brewing company alleging a menace to its plant.

Appeals have been taken by the **Lehigh Valley Coal Co.** from the assessment on certain coal lands made by the Scranton authorities, the company having applied to the mayor and city councilmen, sitting as a board of revision, for a reduction in the valuation. Re-survey of the coal lands of the city is to get under way at once.

## VIRGINIA

**B. T. Griffin**, member of the firm of Griffin Brothers, was elected president of the Norfolk Retail Coal Dealers' Association at its annual meeting. **Oscar Ferebee** of Nottingham & Wrenn, was chosen vice-president, and **C. O. Santos**, of Johns Brothers, secretary and treasurer.

**Nottingham & Wrenn** were recently awarded a verdict of $50,000 against the Norfolk & Western for alleged overcharges in shipments of coal, and for alleged diversions of coal supplies from the company's shipments. The suit has been pending for many months.

## WEST VIRGINIA

**The St. George Coal Co.** has been launched by Elmer C. St. George of Charleston and his associates, this company planning to operate near Julian, which will be the general headquarters of the new concern. The company is capitalized at $25,000. Associated with Mr. St. George in the new enterprise are: F. C. Fenimore, of St. Albans; Paul Fezko, Steve Gyovai, of Julian and George Novak of Van.

Officials of the **Cleveland & Morgantown Coal Co.**, with headquarters at Cleveland, spent the second week of April inspecting the properties of this company in Monongalia County. During the week the four mines of the company, company houses and other property was inspected.

Bluefield business men have formed the **Pocahontas Red Ash Coal Corporation**, which will operate in McDowell County on a small scale, having its headquarters at Iaeger. This company has a capitalization of $50,000. Principally interested in this corporation are: J. G. Magowan, Thomas A. Weeks, Patsy Small, Iaeger; J. R. Cameron and J. T. Breth, of Bluefield.

J. B. Shumate, formerly of Bluefield, will head the newly organized **Pocahontas-Kanawha Coal Co.**, which will have its principal offices at Dayton, Ohio. This company expects not only to engage in the production of coal in the Pocahontas, New River and Kentucky fields but also to deal in coal.

Logan coal men have launched the **McRoss Smokeless Coal Co.**, which with a capitalization of $75,000 will operate on a fairly large scale. The general offices of the company are to be at Logan. Having an active part in organizing this company were: J. J. Ross, of the Logan Mining Co., H. A. McCallister, H. N. Clendenning, W. C. Devault and E. M. Jefferys, all of Logan.

Men formerly prominently identified with the Morgantown Coal Co., have organized what will be known as the **Taylor Fuel Co.**, the headquarters of which will be in Morgantown. Marvin L. Taylor has become the head of the new concern and will have as his associates Harry C. Owen and O. W. Rider, both of whom were connected with the Morgantown Company prior to the formation of the new concern. Mr. Taylor was for several years the vice-president of the Morgantown company and is a director of the American Wholesale Coal Association and of the Pittsburgh Wholesale Coal Association.

Development on a large scale of approximately 8,000 acres of smokeless coal land in the Glade Creek section of the New River field is presaged by the purchase on the part of this company of the acreage mentioned. This land was owned by J. T. Lightner and others. It is understood that the purchase price was not far from $600,000 and that Cumberland coal people are largely interested in the **Eastern Coal & Mining Co.**, which made the purchase. Estimates of the coal contained in the 8,000 acres are as high as 90,000,000 tons, this coal being in three different seams. It is proposed to construct a railroad from the C. & O. at the mouth of Glade Creek to the field it is desired to develop.

Eviction of miners employed by the **Rosedale Coal Co.**, has been ordered by Justice Posten of Monongalia County after a hearing held on April 21, the company served notice on its employees prior to April 1 that if they ceased work, possession of the houses would be demanded for those who were willing to work, the leases under which the houses were occupied containing a clause to the effect that the lease should be terminated whenever the rent was not paid in advance.

Deaths in the mining industry of West Virginia reached a total of thirty-two during the month of March, seventeen of the fatalities being due to falls of coal, slate and timber. Three deaths followed mine car accidents and four men were killed in motor accidents. Two miners were electrocuted, two were killed in premature explosions, one man was killed in a mining machine accident and three died from various causes outside the mines.

## WISCONSIN

Several Milwaukee coal firms are contemplating making improvements at their dock yards during the period of the coal strike. **The Milwaukee-Western Fuel Co.** will construct a new anthracite shed and coal hoist at the Canal St. yard at a total cost of something like $200,000. The same company will build a new hoist at its yard at the foot of 18th St. to cost about $18,000.

A coal miner at Green Bay recently discovered a stick of dynamite in a block of soft coal which he was breaking up to put in his furnace. It was a fortunate find for him and his neighbors.

Talk is rife among coal men at the Head-of-the-Lakes that several coal docks at Superior, will undergo extensive repairs during the period of the strike. No definite announcement as to the companies involved has been made as yet, but extensive improvements are surely on the books.

**The Pittsburgh-Ashland Coal & Dock Co.**, located at Ashland, has let a contract for a concrete face for its dock. Peppard & Fulton of Superior, Wis., will do the work. The contract price is $20,000. Work will be completed this summer.

### NOVA SCOTIA

The Dominion Coal Co., Nova Scotia Steel & Coal Co., and Acadia Coal Co., have announced that they have named **John E. Moore**, of St. Johns, N. B., as their representative upon a board of conciliation established by the Minister of Labor in connection with coal miners' wages in Nova Scotia.

### ONTARIO

**The Dominion Coal & Wood Co.**, Ltd., has been organized in Toronto and has been granted an Ontario charter with power to carry on business and to take over the business of a former company. The capital stock is $40,000 and the provisional directors are K. F. MacKenzie, G. S. Saunerson, A. I. Shortt, H. F. Cline and A. Wells, Toronto.

Magistrate Jones has committed Hiram F. Slater and Leslie J. Thompson for trial on a joint charge of the theft of $400,000 belonging to the **Nukol Fuel Co.**, and conspiracy. This was the final preliminary hearing, and during the taking of evidence, the Crown presented letters written by Thompson, who is the son-in-law of Slater, and a stock salesman, to the Trusts & Guarantee Co. who acted as agents for the Nukol company, instructing them to issue and transfer stock to parties named to the amount of many thousands of dollars. One letter ordered the issue of 10,000 shares to the Financial Underwriters, Ltd., with which Slater was connected. Other exhibits showing transfers of stock from Slater were produced. Bail was given in $43,000 for Slater and $15,000 for Thompson.

**The Penn-Canadian Fuel Co.**, which has had its general offices in the C. P. R. Bldg., Toronto has removed to the York Bldg. **The Scott Coal Co.** will also move to the same building the **F. P. Weaver Coal Co.** has removed from the Royal Bank Bldg. to 38 King St., W.

### WASHINGTON, D. C.

**Director H. Foster Bain**, of the Bureau of Mines, left Washington April 30 on a trip of inspection in Alaska during which he will witness tests of coal from the Chickaloon and Bering River fields to determine their fitness for Navy use. En route he will visit the experiment stations of the Bureau at Urbana, Denver, San Francisco and Seattle.

**M. R. Campbell** is acting as administrative geologist of the U. S. Geological Survey during the absence of **Philip S. Smith** from Washington.

**F. L. Hess**, of the U. S. Geological Survey, is in the field gathering data for the Division of Mineral Resources

**H. G. Ferguson and S. H. Catheart** are en route to Nevada to do geologic work in the Tonopah quadrangle for the U. S. Geological Survey.

**W. R. Smith**, of the U. S. Geological Survey, is working on an oil and gas map of Virginia.

The erection of a magnificent building, costing $1,300,000, as the home of the **National Academy of Sciences and the National Research Council**, will shortly be begun on the square bounded by B and C Sts., 21st and 22d Sts., Washington. The building will serve as a center for American science in its various fields. The building is the gift of the **Carnegie Corporation of New York**, while the ground was bought at a cost of about $200,000 through the donations of a score of benefactors.

**The Arkansas Anthracite Coal & Land Co.**, has appealed to the Supreme Court for review of the decision of the Circuit Court of Appeals, Eight Circuit, which awarded judgment of $14,649 to **Fremont Stokes** for royalties on lands leased by him to the company.

**The United States Civil Service Commission** announces an open competitive examination for junior engineer. Applications will be received until June 1. Vacancies in the Water Resources Branch of the Geological Survey at entrance salaries ranging from $1,440 to $1,740 a year, and in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. In addition to the salaries above indicated, employees will be allowed expenses when on field duty.

It is reported in Washington that **Joseph P. Tumulty**, of New Jersey, formerly secretary to President Wilson, and **Raymond T. Baker**, of Nevada, formerly Director of the Mint, are forming a corporation to manufacture a processed coal under the Trent process at the old plant of the Virginia Shipbuilding Corporation at Alexandria. Mr. Tumulty will be vice-president and attorney for the firm, which it is reported, has leased the old shipbuilding plant on the Potomac.

## Traffic News

An I. C. C. examiner has recommended dismissal of the complaint of the **Wayne Coal Co.**, which alleged that it had been discriminated against and the mines of the Pittsburgh Terminal Railroad & Coal Co. preferred in the matter of car supply from October, 1917, to March, 1918.

In the complaint of the **Salkeld Coal Co.**, an examiner recommends that rates on bituminous coal from Walford, Pa., to Warren, Ohio, in 1920 were not unreasonable.

In the complaint of **Henry W. Somers**, an examiner recommends that rates on steam sizes of anthracite from points in the Wyoming, Pa., field, to Mechanicsville, N. Y., and points taking the same rates were unreasonable.

Deciding the complaint of the **Dayton Malleable Iron Co.**, an examiner recommends that rates on coal from Ward, W. Va., to Ironton, Ohio, were unreasonable.

**The Colorado & Southern Railway Co.** has applied to the I. C. C. for authority to issue certificates to acquire one thousand gondola coal cars.

In the complaint of the **Riverside Coal Co.**, the I. C. C. decides that the rates on bituminous coal from mines on the Ohio & Kentucky Ry. near O. and K. Junction, Ky., to Cincinnati and points in Central and Western territories are unreasonable. It prescribes that, effective June 16, the rates shall not exceed those maintained to the same destinations from O. and K. Junction and points taking the same rates on the main line and on branch lines or spur connections of the L. & N. from O. and K. Junction south to and including Hombre, Ky.

In the complaint of **W. L. Carney**, of Chicago, traffic manager for the **Grogan Coal Co.**, the commission decides that two carloads of anthracite shipped from Dunmore, Pa., to Chicago were misrouted but denies reparation for lack of proof.

The I. C. C. has authorized the **Colorado & Southern Ry.** to issue securities amounting to $1,425,000 to procure 1,000 gondola coal cars.

In the complaint of the **Opp Coal Co.**, the commission decides that the rates on intrastate shipments of bituminous coal during Federal control from various Indiana mines to Aurora and Frankton, Ind., were unreasonable.

Various railroads have asked authority of the commission to establish rates on coal from Arkansas, Oklahoma, Kansas and Missouri mines to Omaha, St. Joseph and Atchison, Kan., without observing the provisions of the 4th section of the commerce act. The applications will be heard before an examiner at Kansas City, May 9.

The complaint of the **U. S. Coal & Coke Co.**, has been assigned for hearing at Louisville, May 11.

The application of the N. & W. Ry. to continue to charge for coal from Caples, Excelsior, Pageton, Springton and Susanna, W. Va., to Loveland, Ohio, rates lower than those to Blanchester, Leesburg and Lynchburg, Ohio, will be heard at Cincinnati May 15.

## Obituary

**G. A. Hickok**, fuel purchasing agent for the Missouri-Kansas & Texas Ry., was found dead in his room at the New Jefferson Hotel in Jefferson, Tex., late in April. Mr. Hickok had been fuel purchasing agent for the "Katy" for a number of years and was well known to all the coal operators of Texas and Oklahoma.

## Association Activities

### Northern West Virginia Coal Operators' Association

In addition to considering matters affecting the coal industry in Northern West Virginia and developments growing out of the strike, directors of the association, at a meeting held in Fairmont on April 24, elected three new directors of the association. They were Frank Miller, Consumers Fuel Co., Broomfield; Stephen Arkwright, of the Arkwright Coal Co., Fairmont; J. G. Binnis, Uniontown, of the Buckhannon River Coal Co. They were elected to fill the vacancies caused by the resignation of Samuel D. Brady, Robert Grant and J. W. Devison, when the Monongahela Coal Association was organized and started.

## Coming Meetings

**National Retail Coal Merchants' Association.** Fifth annual convention at the Drake Hotel, Chicago, Ill., May 18-20. Executive secretary, Joseph E. O'Toole, South Penn Square, Philadelphia, Pa.

**Colorado and New Mexico Coal Operators' Association.** Annual meeting June 21 at Denver, Col. Secretary, F. O. Sandstrom, Boston Building, Denver, Col.

**Missouri Retail Coal Merchants Association** will hold its annual meeting May 16 and 17 at the Planters Hotel, St. Louis, Mo. Secretary, F. A. Parker, Arcade Bldg., St. Louis, Mo.

**National Coal Association** will hold its annual meeting at Congress Hotel, Chicago, May 24 to 25. Committee on arrangements, Harry N. Taylor, chairman, Dr. F. C. Honnold and Walter Cunningham

**The American Wholesale Coal Association** will hold its annual convention at Detroit, June 6. Secretary, G. H. Merryweather, Union Fuel Bldg., Chicago, Ill.

The fourteenth annual meeting of the **International Railway Fuel Association** will be held in the Auditorium Hotel, Chicago, Ill., May 22 to 25.

**National Association of Purchasing Agents** will hold its seventh annual convention at Exposition Park, Rochester, N. Y., May 13-20. Secretary, S. C. McLeod, 130 W. 42nd St., New York City.

**National Foreign Trade Council** will hold its annual meeting May 10-12 at Philadelphia, Pa.

**Mining Society of Nova Scotia** will hold its annual meeting May 15, at Sydney, N. S., Canada. Secretary, E. C. Hanrahan, Sydney, N. S.

**American Society for Testing Materials** will hold its twenty-fifth annual meeting June 26 to July 1, 1922, at Atlantic City, N. J., with headquarters at the Chalfonte-Haddon Hall Hotel. Assistant treasurer, J. K. Rittenhouse, Engineers' Club Bldg., Philadelphia, Pa.

The twenty-seventh annual convention of the **Illinois and Wisconsin Retail Coal Dealers' Association** will be held at the Hotel Highland, Delavan Lake, Delavan, Wis., June 13, 14, 15. Secretary I. L. Runyan, Chicago, Ill.

**American Society of Mechanical Engineers** will hold its annual meeting May 8 to 10 at Atlanta, Ga. Secretary, C. W. Rice, 29 West 39th St. New York City.

The annual convention of the **Pennsylvania Retail Coal Merchants' Association** will be held at Trenton, N. J., June 7 and 8.

**Retail Coal Dealers' Association of Texas.** Seventeenth annual convention at Greenville, Tex., May 15 and 16. Banquets on both nights will be tendered the association, that on Wednesday night being given by the Greenville Chamber of Commerce and on Thursday by the Wholesale Coal Men. Secretary, C. R. Goldman, Dallas.

**American Society of Mechanical Engineers.** The spring meeting will be held at Atlanta, Ga., May 8-11. Preliminary events will be held at Charlottesville, Va., May 5 and 6, in cooperation with the Virginia section of the A. S. M. E. Immediately following the Atlanta meeting observation tours will be made to points in the South, including Birmingham, Greenville, S. C., Muscle Shoals and Pensacola, Fla. Secretary, Calvin W. Rice, 29 West 39th St., New York City.